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THE
ENCYCLOPEDIA
OF HEALTH
AND PHYSICAL CULTURE

BERNARR MACFADDEN
EDITOR-IN-CHIEF

A COMPREHENSIVE GUIDE TO THE PROPER CARE
AND COMPLETE DEVELOPMENT OF THE HUMAN BODY
WITH DETAILED DIRECTIONS FOR THE
PREVENTION AND TREATMENT OF DISEASE

INCLUDING SCIENTIFIC METHODS FOR BUILDING
DYNAMIC, POWERFUL HEALTH AND ATTAINING
A SYMMETRICAL, BEAUTIFUL BODY

ARRANGED FOR READY READING
CLASSIFIED FOR IMMEDIATE REFERENCE

IN EIGHT VOLUMES

VOLUME IV

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THE
ENCYCLOPEDIA
OF HEALTH

VOLUME IV

HEALTH AND PARENTHOOD

*Foreword
by the Editor*

SEX is the basis of life. It is life's greatest and most dominating force. Without it we should soon pass to oblivion. Homes are built and nations perpetuated through its influence.

Almost everything that is bright and beautiful in Nature is associated with the urge toward mating and home-building. It lends a glamour to social life, an interest to almost all forms of art, a goal to practical activity.

But growing minds for generations have been impressed with the idea that sexual desire is vulgar and degrading. With such a point of view it is little wonder that many people have become imbued with the idea that whenever they are influenced by the instinct of sex they are within the grasp of the devil himself, and that the one honorable course to pursue under such circumstances is to ignore or stifle the instinct.

Where normal, healthy and wholesome conditions exist, men and women naturally find mates, found homes and rear children. But there are too many, especially young girls, who crush out the instinctive demands of sex as something degrading in their lives. Slowly but surely this suppression leaves its mark upon their features and character. Such girls become neutral and unattractive. They lack feminine charm. Young men, so repressed, become shy, bashful, awkward. Ultimately starvation of the sex instinct usually results in lowered general vitality. Its victims are weak-willed, lacking in character and dependability.

Normal Sex
Life

EFFECTS OF SEX SUPPRESSION.—There is nothing that detracts from the social and personal effectiveness of any individual more than a repression of all normal sex impulses. A mollycoddle, neutral type of humanity is offensive. And sex starvation tends to make a personality that is neither man nor woman. Mannish women and effeminate men are equally obnoxious to most healthy people. Everyone knows such

people. Everything about them is repellant, in a negative sort of way, from the flat, high, tonelessness of their voices to their capacity for being shocked.

Everywhere one sees emotionally immature, physically undeveloped men and women, who have been robbed of their normal heritage in youth by lack of honest, forthright teaching about the marvelous structure of the body, and the great, vital meaning of sex. They have been robbed of physical and emotional wealth that is worth more than education, worth more than millions of dollars. They have been robbed of those personal characteristics which help men and women to make the most of themselves in life. They have in some cases been robbed of opportunities to make happy and permanent marriages, and to become the parents of beautiful and robust children. They have been denied their rightful heritage to be mated, healthy and happy.

Sex and
Emotion

SEX AND THE EMOTIONAL LIFE.—Though many overcome this repression sufficiently to marry, the results of inadequate sexual release remain with numbers through life. They are not happy in marriage. They develop all sorts of abnormal emotions, desires and nervous habits. They take refuge from reality in vague dreams. Freud, Jung and Adler, and many other modern psychologists, have demonstrated the great and far-reaching influence on the personality of false teachings about sex in early life. Numerous types of human ills have been traced to it—paralysis, bodily deficiency of all sorts, loss of memory, speech defects, chronic nausea, insomnia. Psychologists have demonstrated also that relatively few apparently normal people are quite free from those checks and limitations on the normal development of their powers which result from false impressions of the processes whereby the continuance of the race is assured, and the many false associations with it.

Excellent as has been the work of numerous psychologists in demonstrating the disastrous effects of sex repression, many modern people, in their efforts to avoid this error, have fallen into an even graver one. In releasing themselves from physical sex suppression, they have not released themselves emotionally. The modern hard-boiled young person, despite experiments in sexual contact, is as repressed as his grand-

mother. He is afraid to love. He is not rid of his inhibitions but has merely moved them on from the physical act to the beautiful emotions normally associated with sex.

What is needed is not only sexual release, but emotional release. Where people gen-

Many young people enter upon marriage blindfolded. They have not been warned of its dangers nor prepared to assume its responsibilities. Physical examination for both man and woman before marriage is desirable. In many states a certificate of health is now required by law.

ILLUSTRATION BASED ON
POSTER OF U. S. HEALTH
SERVICE

Inhibitions



uinely love, and where the physical vitality is rich and wholesome, sex mostly takes care of itself. It develops its own laws and its own modesties. The Victorian era emphasized love, in all its phases, to the point of sickly sentimentality, but it ignored sex. The modern age is recovering from that error. The sex sophistication of our time emphasizes sex to the last physiological detail, but tends to ignore love.

It is necessary to recognize the all-pervasive influence of sex in human life and the need of an exact knowledge of it in all its phases. Such information is given in this volume. But it is also necessary to recognize that sex presents itself to the consciousness as love. And no real person should be ashamed to think of love and dream of love and to fall in love and express love freely, in all the warm and natural intimacies of life.

Love as a
Force for
Good

Love is one of the greatest forces for good in the world. The love of a man for a maid is often his making. It often reaches down to the very gutter and pulls him up to his feet and gives him a new start in life. Lovers put their best foot forward. Plato long ago suggested that if one wanted a really courageous army, one should send lovers to battle in pairs. For a man would be ashamed to be a coward in the eyes of the beloved, and having someone near him to fight for, would fight to the last ditch. But that, of course, was in the days before machine guns, when fighting still involved a measure of more or less heroic display.

Everyone knows the gloriously rejuvenating effect of love upon the whole personality; if he does not he is to be pitied. Lovers look their best. They try to behave their best. They think and act in a manner new to them. To be sure they do this to win the object of their affection. But they do not consciously deceive. On the contrary, they think and feel just what their actions and words indicate. Love calls out the best in them. It casts out the demon of selfishness. It erases coarseness and vulgarity. It refines and elevates the personality.

Love stabilizes the life of a man or a woman. It quickens the ambitions and aspirations and enables one to accomplish more. The young man in love works harder. He seeks to advance himself. He tries to do more and better work. He

is no longer content to take things as they come. For now he has something to work for.

The great outstanding beauty of our paths through life comes to us through love. It is herein that we fulfil our duty, that we pay our debt to the generation.

SEX AND HOME-BUILDING.—The normal satisfaction of love is the founding of the home and the rearing of children. All other forms of

Love and
the Home

Old-fashioned marriage customs of France involving a wedding procession in hand-drawn carts are here shown contrasted with a modern wedding tour by airplane.

PHOTOGRAPH INTERNATIONAL NEWSREEL



satisfaction are likely to be transient or incomplete. Those who lack proper reverence for their own bodies repress or waste and abuse the great power of passing on life.

The power of the nation is founded on stable, dependable homes. When the home crumbles away, the nation ultimately passes into oblivion. A happy, fruitful home should be the desire of every normal individual. But to attain happiness in home life one must possess the knowledge essential to protect one from the evils which destroy happiness in marriage.

Every individual yearns for happiness. He struggles for success, for fame, for money, for a career; but the great central motive in all his efforts is the founding of a home. Few men have much incentive to do, to make, to advance in life, materially and personally, unless their efforts have some relation to an intimate love-life, and usually to the perpetuation of themselves through children. As one passes from courtship into home-making, one should be able to keep the exquisite personal happiness of the first flush of romantic feeling, while adding the wider and deeper interests which the home normally brings. The fact that the heyday of joy in marriage is usually transient is due to easily avoidable mistakes. This lack of genuine and lifelong joy in marriage is among the disastrous results of the prudish teachings of the past. Prudes and ascetics never went so far as to deny the need of perpetuating the race, and the dignity of family life. But they refused to recognize the great personal and social value of a genuinely happy sex life between lovers for its own sake. Sex, except as a means of perpetuating the species, was looked upon as a purely personal pleasure, and something to be ashamed of. One difficulty with this attitude, is that it has despoiled home life, and robbed the woman, as wife and mother, of her normal happiness, and has transferred romance to all sorts of unhealthy forms of incomplete sexual expression. In every civilization where this has happened there has been a decay of originality and beauty in the whole culture of the people.

If the race is to continue to progress, the home must be preserved. Forces that tend to destroy this institution are at work and have been at work for a century. Of these prudery and ignorance are the most subtle and dangerous.

Children and
the Home

Romance and
the Home

SEX IDEALS OF THE PAST.—In the great periods of every civilization there has usually been a strong emphasis on physical exercises, or at least physical skill, and general study of all the social and personal details of love-making. Great personal hardihood and strength, and emotional sensitiveness and beauty of manners have gone hand in hand. There is no better example of the association of a high degree of civilization with an interest in the details of the love-life for its own sake, and the decline of originality and beauty in the arts when the ideal of love lost its unity, than the culture of Japan.

Medieval Japan, which invented the art of flower arrangement, the tea ceremony and landscape gardening, brought the whole art of social intercourse between men and women and between men and men to a high degree of perfection. The arts of dress, of personal grooming, of etiquette were carried to a finish which tended to be overexquisite. But this same period developed an extraordinary muscular control and technique in swordsmanship and wrestling and an ideal of hardihood, in devotion to one's lord or country, as rigorous as any the world has ever seen. And the degree to which the pursuit of love, through every possible refinement of feeling, dominated the upper classes in the great days which produced Japanese civilization is evident in the old tale of Prince Gengi. Later on, distinctions between two kinds of women—the mother and wife and the mistress—were made. The sweetness and devotion and self-effacing courtesy of the ladies of the Gengi period were left to the wife, and the brilliance and freedom and cultivation of all the arts of external appeal to the geisha. And there were never any real additions to the ideal of personal cultivation in Japan after that. For the ideal of love lost its unity and romance and became utilitarian or frivolous.

Women in
Far Eastern
Civilization

This tendency to divorce romance and poetry from the love which founds the home and which should endure to the end of life, and to fix it on some unhealthy and partial satisfaction, has appeared again and again in Europe and always with socially disastrous results. The two greatest western ideals of personal conduct—the ideal of the Greek and the ideal of the Christian knight—began in a whole-hearted pursuit of physical superiority and skill and a formulation of many high-

mind and romantic ideals of love. But Greek idealism faded out in Platonic love, a purely spiritual relation existing between persons of opposite sexes. The medieval ideal of knighthood, to which we still owe our social forms and many ideals of conduct, became involved in all sorts of asceticism and self-denial, lifting the lady higher and higher on her pedestal till she faded away in moonlight.

Even when we are not conscious of them, these ideals of the past influence us in all our emotional life. They meet us in the romances we read. They come down to us through the schools. It is a pity that against all the sickly idealism of most

Idealism in
Sex-Life



PHOTOGRAPH WIDE WORLD

Aptitude for athletics of a specialized sort possibly may be inherited. In this photograph appears a famous American professional baseball player (at right of group) with his two sons. One of these sons exhibits marked resemblance to his father, also attaining success at the same sport; the son at left shows variation in inherited physical traits.

of the romantic tradition of Europe we cannot set up the ideal of the Taj Mahal—the greatest single monument ever built to love and a woman. For Mumtaz Mahal, the young queen for whom this exquisite marble tomb was designed, and to the glorification of whose sweet, pure, feminine personality the emperor, her husband, devoted his life and the resources of an incredibly great wealth, was the mother of eight children and went with her husband on all his military expeditions, traveling with the army and living in a tent. And through it all she retained so much charm for the emperor that her memory dominated the rest of his life, against the distractions of a great Oriental harem and unlimited opportunity for self-indulgence.

If love and companionship of this quality could exist in a family of growing children, home and mother would then have new and more beautiful meanings. But love of this sort demands great physical vitality and an honest and unashamed maintenance of the physical tie.

Companion-
ship in
Marriage

MODERN MARRIAGE.—The romantic idealization of love which has come down to us in books and art from great periods in the past so affects us all that most people enter the intimate association of marriage with anticipations of great happiness. They may know of many unhappy marriages among their friends, but they pass them by. "Such a catastrophe could not possibly come to our marriage"—this is the thought that stirs the heart of newly married lovers.

But the feelings of courtship days gradually change. Each one will blame the other for the emotional antagonism that develops, but it is due almost entirely to a physiological change in the feeling of husband and wife.

The lovers jar on each other because the physical attraction has ceased. The thrill that came from the touch of the hands or the caress of the lips has disappeared. We hear much of the spiritual character of the association in marriage. Others dwell upon the importance of a feeling of friendship between men and women in this sacred institution. Undoubtedly the difficulty often is that duties and responsibilities associated with marriage are not taken seriously by husband or wife. They have not learned that love brings not only ecstasies, but definite responsibilities which must be properly assumed if the

relation is to continue to be happy. Nevertheless, the higher feelings and the sense of duty and responsibility become meaningless if the physical attraction has been lost. The great primary necessity in marriage is to keep the charm and the contentment that belongs to the physical association each with the other.

The main object of the following pages is to bring out the fact that the higher physical instincts should be the guiding, directing force in marriage. Before assuming the responsibilities of marriage a man or woman must be at least a normal specimen of physical life. The more vigor and vitality he or she possesses, the more ably will the duties of marriage be performed.

INFLUENCE OF CHILDHOOD TEACHING WITH REGARD TO SEX.—If perfectly healthy, normal human beings could enter marriage entirely uninfluenced by any teachings whatsoever, or by ideals derived from literature, art and religion, they might be expected to find their own way to a happy physical union. But this is now impossible. Throughout youth, which modern western civilization prolongs artificially far beyond the age of puberty, young people are filled full of ideas and notions which either degrade the whole idea of sex, or effect an unhealthy divorce between its emotional and physical values. Most people are hampered all their lives by the first hints of sex they received in early childhood. And these hints are in too many cases both false and filthy. Hundreds of neurologists and psychiatrists are kept busy all the time ministering to the wretched victims of this false teaching.

Sex Ideas
in Youth

"Love and marriage can't possibly be clean when childhood is dirty," declares the author of *Humanizing of Knowledge*. "The dirty and distorted notions about life and love," he declares, "which little children pick up in gangs, on street-corners, in bed, by hearsay, on the school premises, in adult society, in all the twilight alleys of gossip and scandal, are the chameleon 'damaged goods' later refurnished for show and barter at the bargain counters of life: Love and Marriage."

The wonder is not that the greater number of people go through life with their emotional capacity damaged or poisoned by what they have learned, or not learned in childhood, but that they do as well as they do in spite of it. Children come

into a world that is reeking with moral filth and mental nastiness. There is an adult conspiracy of silence which denies them the protective truth and helpful knowledge with which they should be armed. They are forced to gather up bits of information, misinformation and half truths from any source from which they may be able to get it. The frank curiosity of childhood is regarded as indecent. Its constant reaching out for more knowledge is considered an evidence of depravity. Honest questions are answered with myths, fairy tales and lies. What wonder that there are so many shipwrecked children! What wonder that hysterics, neurasthenics, psychological wrecks of all kinds throng the office of the psychoanalyst, who only by a slow and often agonizing process of questioning can get them to disgorge the filth which is making them ill!

Crimes of
Silence



ILLUSTRATION BASED ON POSTER OF U. S. PUBLIC HEALTH SERVICE

It has been found that children will learn about sex from one source or another at an early age. The parents' part is to see that they learn the truth.

Hoodwinked by ignorance, and what is worse, misinformation, young people are left to fight life's battles bewildered. Filled with doubts and fears, not knowing where to turn, nor whom to go to for advice, they flounder and stagger along. From all sides and from a thousand sources there pours in on them the ever-increasing stream of filth and nastiness. That any of them ever survive it forever gives the lie to the hideous doctrine of human depravity.

Life to children is often made a nightmare, a terror. Youth is a round of mistakes and regrets. They grow up and get married. And what marriages! "Love and marriage can't possibly be clean when childhood is dirty."

Society is an Augean stable full of sexual filth. Only by turning the waters of truth from the rivers of knowledge into it can society be purged of its filth and childhood be given a fair chance and an even break. A moral Hercules who can arouse this world to a realization that its prudery, pruriency and hypocrisy are dragging its children down to ruin is the crying need of the times.

Yet the world does make progress, although often this seems to be exceedingly slow. The magazine *Physical Culture* from the first stood for a sane, wholesome attitude toward sex. It opposed the conspiracy of silence that forced children to receive their sex instruction from questionable sources. It fought for the teaching of the truths of life. It proclaimed the saving power of truth and knowledge. The stork and other birds, some of them rather unclean birds, it attempted to eliminate.

This was dangerous work in the old days. But times have changed. The revelations during the late war aroused the government to the appalling state of affairs. The Y.M.C.A. and the Y.W.C.A. and other organizations joined with the army and navy in the work of giving a belated sex education to our soldiers.

SEX HYGIENE FOR THE YOUNG.—We confidently look forward to the time when sex hygiene will be as widely taught as hygiene of the body in general. The old conception of sex as something nasty, vile, vulgar and unclean will pass away. The younger generation may well be thankful that it need not wade through the ignorance, prurient prudery and vulgar-minded-

Unwhole-
some Atti-
tudes toward
Sex



PHOTOGRAPH EWING GALLOWAY

PLATE 43. Campfire girls with their sleeping equipment after a night in the outdoors.

Encyclopedia of Health: Volume IV

ness that the older generation had to come up through. Let us all rejoice that the light has been turned on and let us ask for more light. Most educators now agree that children should be taught the facts of life; that they should not be left in ignorance to battle with the evil forces they must meet. It is now recognized that ignorance of the physiological facts of sex is the cause of a vast amount of moral waste. Many pitiful cases of moral and physical ruin that have been due to such ignorance, could easily have been prevented by proper education.

I have reared my own children with the one thought in mind of developing them into fine, splendid, upstanding specimens of womanhood and manhood. I want them to grow up into vital, vigorous men and women. I want them to be sturdy and dependable and to have all the mental and physical qualifications for building homes of their own of which they can be proud. Already I have discovered that for girls so trained there is no awkward age. The period of bashfulness, of clumsiness, of inner unhappiness, which is supposed to come between ten and twelve and to continue till between fourteen and sixteen, does not appear among girls who have been trained in swimming and acrobatic dancing and have been given clear, definite and reverent instructions about all the facts of life and reproduction by a loving father and mother. Girls trained in this manner are always graceful. They possess well-poised and beautiful bodies at every age, and free and courageous spirits.

Educating for
Parenthood

Girls and boys alike should understand the details of their sexual natures. They should be possessed of this knowledge which is necessary, first of all, for their own protection, through all the dangers and emotional problems of youth. In other words, each one of them should early know himself. "Know thyself" is one of the commands which has come down to us from the distant past. And you can disobey this mandate only at your peril.

SEX AND PERSONAL MAGNETISM.—"Sex appeal" is a term often heard now-a-days. It is used to designate a quality which many people feel that they have lost, or of whose desirability they have only just become aware. Sometimes people use the wider term "personal magnetism," or just "per-



PHOTOGRAPH ART MINIATURE, LONDON

Religious art in certain instances has idealized the renunciation of sex, as in Corregio's masterpiece "The Mystic Marriage of St. Catharine." This painting portrays an idealized vision of motherhood, instead of its physical accomplishment.

sonality." But in every case they seem to be seeking the same thing—that vivid aliveness which makes people attractive and beloved, which draws to them both general social popularity and the romantic love of one individual. There is ample justification for this interest and this search.

Inner
Cleanliness

A high degree of natural contentment, of bubbling high spirits, is possible to anyone of overflowing physical energy, perfect health and inner cleanliness. Enchantment and rapture come through love. The world is full of dull souls who have unknowingly cast aside the supreme experiences of living.

Love is foreign to their natures. Their affections have never been awakened or they are warped and distorted. They have failed to appreciate their possibilities. Romance touches them but little. They are incapable of deep, heart-stirring love.

Naturally they cannot arouse affection in others. For personal appeal is mainly a subconscious seeking for love and readiness to welcome it. We are beloved in life mostly in proportion as we are capable ourselves of loving, and behind all personal attractiveness is probably a genuine wish to attract.

Whatever the man who seeks genuine happiness in life does, he should not make the mistake of dulling the instinct to love and to be loved. Instead he should intensify his emotional responsiveness, should develop and expand it in every way. To be sure he is then increasing his capacity for suffering, but suffering, too, is something that makes for increase in personality. If you have never experienced a love life that moves you to the depths of your being, you have missed life's divine purpose. Every human unit is entitled to live within a beautiful love story. You should find it and keep it. It is life's greatest objective. Happy and fruitful homes cannot be built by any other means. Nations cannot grow in greatness and power without it. And you should not minimize the importance of removing every obstacle to an effective love-life and acquiring every means of normal attraction if your personality is to be all that it may be. All talents, all powers, all natural graces blossom in the sunshine of loving and being loved.

Normal
Instincts

Many people find happiness of this sort largely through accident, but happiness in love, like all other happiness, depends on knowledge and right habits and a readiness to grow and change and learn by experience. In the following discussion we will deal with the attitudes and false teachings which prevent people from attracting love to themselves in the first place, and which make it impossible for them to find a proper happiness in love, even after the lover is attracted. Sex is translated, in ordinary social life, and in one's inner consciousness, into love and beauty and happiness. It normally expresses itself in personal attractiveness and in the use of all social means of coming in contact with others and making oneself appear as desirable as possible.

Self-
Indulgence

People lack personal magnetism chiefly because the influence of the prude and the Puritan is still with them. Most of us had a few Puritans among our dearest relatives and teachers, the molders of all our childhood ideals. The effect of Puritanism shows itself in physical rigidity, in a fear of music, of the dance, of joy and happiness and beauty. For what the Puritan and the prude fear is not the sight of the body but the beauty of the body. They do not mind thrusting upon your sight the crude and vulgar physical display involved in carrying around twenty-five or thirty pounds of superfluous flesh on abdomen or elsewhere, but the beautiful bare limbs of a young girl in a bathing-suit shock them. They don't mind the physical self-indulgence of consuming much more food than is good for them, but physical sensations lost in a glory of rapturous emotions are anathema to them.

It is not really immorality that the prude and the Puritan fear, but beauty and joy. What they are really afraid of is not sex but love. And hence this type of prudery which entered into the training of practically all young people a generation ago and still instils its poison into most of them, despite the brave protestations of educators, is particularly demoralizing to all development of personality which makes for beauty, glamour, warmth of emotion and genuine personal appeal.

Everyone who desires a happy and useful life should make every effort to disabuse his mind of these early and vulgar impressions of sex, and to get full, clean and reliable sex knowledge. And wherever a limitation of personality which prevents one from attracting love can be traced to early teachings of this sort, one must simply train oneself to new habits.

Even after the false ideas of sex are reasoned away, it is necessary to counteract their effects relentlessly through all the esthetic and social phases of personality. The resistance to physical or emotional enhancement of the personality founded in early sex repression is extraordinarily strong and is frequently covered by most ingenious reasoning. It is remarkable how many excellent excuses the person who has learned to read anything and discuss anything and think anything about sex can still find for not learning to swim or to dance. If any reasons present themselves to you for not immediately

making yourself as healthy and beautiful as possible, for not enjoying the care of the body and the display of the body, and for not indulging in any and all social habits of your time, do not believe them. They are all camouflage.

SEX WHEN YOUTH IS PAST.—Two of the ways in which this type of repression shows itself is in a too early development of dignity, and premature old age. There used to be a notion that sexual

impulses declined after youth. Many people, especially married women, would apparently hurry on all the signs of middle age in order to get away from the depravity of youth in this matter. They felt that there was an impropriety, a positive immorality, in remaining slender, and young and attractive after marriage. It might look as if one were out for sexual adventure. In fact, the married woman who remains beautiful, young and slim is still the subject of unpleasant gossip in many communities.



"THE STORM." COPYRIGHT CAMPBELL PRINTS, INC. N. Y.

In Western civilization, monogamy has been upheld by chivalry. Art and literature have stressed the romantic, as well as the protective aspects of marriage.

Age and Sex

It need hardly be said that such an attitude is the height of folly. There is no age at which one is bound to stop being physically attractive or to cease to love and be loved. The maintenance of a healthy and beautiful body through long walks, proper food, bathing in sun, air and water, together with all the other means suggested in these volumes for building resplendent vitality, will undoubtedly increase and prolong sexual desire and desirability. But the desire to escape from sex and love into the established routine of old age is itself a morbid one. Love at any age is the normal lot of man. The desire for affection will appear from time to time no matter how much you repress it. With increasing leisure, this desire will almost unconsciously grow stronger, even when youth is past.

Love and appreciation are necessary to happiness. Some may go through the early years and ignore this normal craving, but they usually live to regret it. Loneliness at any time is often the source of misery and despair. But when we pass through middle age and approach the end of life, to be alone and friendless, without the affection of those closely allied to us by blood, is indeed a terrible misfortune.

Neither early training, nor some mishap in your emotional life, nor lack of knowledge, nor lack of health or social opportunity, should be allowed to intervene between you and the fulfilment of all normal human life. There is a way out of all these difficulties and if you do not find the way, you may be turning aside from happiness that would satisfy the innermost cravings of your very soul. Exercise, such as walking, dancing, swimming, calisthenic drills that are used at home or in gymnasiums—any method that will bring into active use the entire muscular system will insure its symmetrical development. Your most valuable possession is represented in the possibilities that can be attained in a fine, strong, splendid body. You owe it to yourself to build such a physical organism. You owe it to yourself if you desire to make the most of yourself not only physically and financially but in every other way.

When you build a home and bring new human lives into existence, you must remember that your body is inherited by these human entities. Their health, their vitality and their

happiness depend on what you pass on to them. Therefore, make your body glorious in its strength and health and symmetry, for by so doing you glorify your own life, make it more complete, more satisfying, and fill it with the radiance that at times brings untold happiness. Hold up your head. Square your shoulders. Appreciate the possibilities that are within your reach. With a fine, strong body, your daily duties will be effortless, and success and happiness will surely be yours.

Perhaps the average man or woman will say: "But I have no time!" You might as well say that you haven't time to eat or sleep. Proper exercise of the body is just as important as eating or sleeping. If you fail to build up the body you are missing most of the delights of life. The care taken of the body, regardless of age, will not only prevent jagged nerves but will give you ambition, energy and determination.

B. M.



The Radiant
Life

"MME. LE BRUN AND DAUGHTER." COPYRIGHT CAMPBELL PRINTS, INC. N. Y.

The stressing of spiritual ideals of maternity has been long accepted as an important office of art and literature in civilization.

SEX— THE CHAIN OF LIFE

Section 1

THERE is abundant evidence that the world of today is becoming more normal and more rational in its attitude toward sex and sex manifestations. This is but a part of the growing appreciation of the human body and its functions. It is concomitant with the decline and passing of prudery—an expression of a more frank and honest attitude toward the basic facts of life, a sincere facing of the truth, which means toward sex and all human relations, an infinitely more wholesome, natural, and healthful attitude than that of the Victorian era.

New Views
of Sex

By knowing and understanding the truth, one becomes better able to put sex in its proper place in life. At present, interest is not so much in sex itself as in sex psychology. Here the world is almost wholly uneducated, and it is here that education is most needed. It is vitally necessary that men and women be set right on this subject. It is the purpose of this volume to forearm the young and unmarried against the perils of sex ignorance, and to assist the mature and married to attain readjustment of difficulties in their sex lives.

Sex permeates the warp and woof of human life which it colors, glorifies, vitalizes. In its many ramifications it often appears to be the supreme factor in human destiny. Normally the source of infinite blessings, nevertheless, through the violation of natural laws or even of man-made laws, it may become the source of trouble, distress and disaster. Yet the great mass of human experience, taken far and wide, proves that sex is the source of the deepest satisfactions, the keenest joys—the source of the greatest of all things—life itself.

In its capacity for good or harm sex is not unlike gravity, fire, and electricity. It is true that gravity causes the crumbling wall or the loosened mountain-side to fall and crush out life in doing so; but also it is true that it holds the wall and the mountain-side in place until something shatters them. Gravity

sustains the tallest tower of brick and stone, even the famous leaning tower of Pisa. Fire may burn and kill; but in the main it warms the homes, cooks food, cleans and presses clothes, runs trains. Electricity may wreck and destroy; but leashed and controlled, countless billions of explosions set off by it propel millions of smooth-running automobiles, and the harnessed current drives countless labor-saving devices. So it is with sex, in the broadest aspect: one of the greatest forces in life, it is capable of annihilating those who abuse it; but to the wise it is the source of many of life's keenest joys.

Not only is sex the mainspring of romantic love, thus productive of beautiful spiritual and emotional experiences; not only does it lead to marriage, parenthood and all the blessings of that sanctified institution, "home;" but it is the root of all those varied characteristics and forces that combine to make *men* and *women*,—or, in other words, that make complete human beings.

Sex is not limited to physical features. A man is a man, a woman is a woman, from crown of head to sole of foot, differing not only physically but mentally and emotionally. The feminine qualities of woman and the masculine qualities of man permeate the entire being and give each of them intrinsically different constitutions, characters, temperaments, capacities, idiosyncrasies, diatheses and mutations, as well as different forms and secondary and tertiary physical sexual characteristics.

Various As-
pects of Sex

Only by means of transmutation through abnormality produced by disease, accident or surgical operation can the two sexes approximate each other. Yet few men are wholly masculine, few women wholly feminine; there is some mixture of characters in nearly everyone. Allowing for those minor feminine characteristics in men that mean greater gentleness, compassion, sympathy and consideration, and the minor masculine characteristics in women that give them physical power and mental ruggedness, there is still a vast and necessary difference between the sexes. If this were not true, the mating impulse might disappear or become so greatly reduced that the continuation of the race would be endangered.

TWO IMPORTANT BASIC ELEMENTS OF SEX.—There are two main reasons why, in the past, the world has not ap-

preciated the dominant and far-reaching influence of sex in mankind's spiritual and emotional life. The first is that people have been inclined to limit their observation and consideration of the phenomena of sex to anatomical and physiological facts. The second is the tradition that the body in general, and the sex function in particular, are unclean.

Naturally, with this overemphasis of the physical aspects of sex, the psychological channels of its expression were overlooked.

**Sex Attraction
More
Than
Physical**

Individuals find a glimpse of the truth in the beautiful and romantic experience of "falling in love." Actuated by exalted sentiments, they sense the glorified spiritual and emotional nature of this life-force. Also, in the relationship of a happy married life, many couples perceive these spiritual values. But

for the most part no just appreciation of the spiritual and emotional significance of sex has been attained. This is one reason why adequate sex education is urgently needed.

On the one hand there is the complaint that parents do not teach their children the truth about sex; on the other hand it is contended that the parents themselves have never



PHOTOGRAPH KEYSTONE VIEW

Students of a Pennsylvania college receiving instruction in the care of the child as part of Home Economics course.

been taught and therefore do not know what to teach. Unfortunately, many of the old-fashioned books designed to tell the young what they should know on this subject, and even many books of the last one or two decades, have been so full of traditional prejudices and distorted facts that they have fallen far short of their original purpose. So today it is necessary not only to inform and educate, but also to refute and destroy the false teachings of some of the old writers upon this subject. It is hoped that any seeker after trustworthy information on sex matters will find in this volume those facts in which he or she is most interested, the aim in preparing it having been to present the whole subject as now understood by advanced thinkers along these lines.

WHAT IS SEX?—Primarily, sex is the biological classification of living creatures into two independent divisions, female and male.

It is important to realize that those fundamental principles of existence, by which human beings are constitutionally either male or female, are not quite in the nature of separate and distinct forces, but are intimate parts of the web of life; they exist only because of their relationship to each other, and because of the mutual attraction of one for the other. It would seem that these two principles, femininity and masculinity, are separated only that they may again come together—which expresses the meaning of sex as nearly as it is possible for the human mind to comprehend it.

**Real Mean-
ing of Sex**

Femininity and masculinity appear to be a sort of polarization, suggesting the well-known positive and negative poles of electro-magnets. The analogy is not perfect; but the power of attraction between the sexes is as persistent and powerful among those having a normal and healthy make-up as is the attraction of unlike magnetic poles. This is one of the facts to be reckoned with in human experience. Indeed, one may say that it cannot be ignored with impunity. Certainly many of those who shut their eyes to this fact, and attempt to throttle or stifle these natural forces, wreck themselves.

Secondarily, sex is the selective agency of reproduction. Much of the prejudice and misunderstanding surrounding matters of sex arise from a narrow view of the workings of this essential agency.

Outstanding anatomical facts and the manifest physical functions are apt to blind and confuse the thoughtless. Probably this is why people commonly refer to the magnetism of sex as "mere physical attraction," or, perhaps, "animal passion," or, to use another popular term, as something "carnal." That, at least, is leaping to conclusions. How can one assume that the attraction between the sexes is wholly a physical thing? To what extent is sex attraction spiritual? Is it not a manifestation of the nervous forces of the body? Is not nerve-force intelligent, commonly expressed in thought and feeling, as well as in sensation and the control of bodily movement and function?

Mental Attitude toward Sex

Poets and novelists glorify romantic love; artists and composers of music create masterpieces under the inspiration of sex emotion, sublimated into terms of creative effort. Indeed, all human experience demonstrates that sex is at once the



PHOTOGRAPH INTERNATIONAL NEWSREEL

In the wedding ceremony of the Stony Indians of Western Canada, eagle-feathers are significant of faithfulness. In this photograph of a white couple, the bridegroom is shown placing upon the bride's head a headdress of eagle feathers.

mainspring of human achievement and the source of life's greatest beauties. Yet, in spite of these endless mental and spiritual manifestations of the sex impulse, people refer to it as a physical attraction, as an expression of one's lower or baser nature, the animal instinct.

Sex is not that. It is a normal part of life. It is really the racial part of life, meaning that part concerned with the continuation and perpetuation of the species, as contrasted with the individual. It is the instrument of immortality. Not the speculative immortality of the soul after death, but the actual, endless persistence of life made possible by the miracle of creation, manifest in reproduction. If life is wonderful, then sex is wonderful, since it is the vehicle of undying life. Hence it follows that if life is clean, sex is clean.

Throughout the entire animal kingdom (above the lowest forms) the instinct of sex is the inborn impulse, craving or desire of one sex for the other, and, underlying the impulse, is a fundamental difference in the two sexes due to complementary variations, glandular and chemical. The factors responsible for the differences in the two sexes make "sex." No normal man or woman can be wholly without sex. The only way one may become so is through some change that makes the individual not only much less man or woman but less human.

Sex Not Anti-Social

The majority of people look upon sex as influencing their lives only in a physical way. The truth is far from this. Sex influences not only every physical process but also a large part of human thought and action, even extending to those that actually have nothing to do with physical sex. Growth from infancy to maturity and decline from maturity to senility depend largely upon sex, and are normal or abnormal as sex is normal or abnormal.

Nearly everyone looks upon life according to the condition of one's sexual health or abnormality, though perhaps one is totally unconscious of this fact. Mental processes, profound or frivolous, moral, unmoral or immoral, are determined in large measure by unconscious sex influences. Mental and spiritual evolution from birth to death; sociability and conviviality or exclusiveness and aloofness; capacity for earning a livelihood and obtaining some of the luxuries of life, even

Early
Sex
Stimulus



PHOTOGRAPH PACIFIC & ATLANTIC

Many races are as yet so little influenced by civilization that they retain their ancient tribal customs in dress and ornament, as does this Borneo *débutante*. Feminine members of uncivilized tribes are often indicated as maidens arriving at maturity, or formally mated, by costume, ornamentation, hairdressing and even physical markings such as tattooing.

the selection of occupation, pleasures and luxuries, as well as the capacity for work or play, for grief or gladness, for hate or love—these and many other human characteristics and emotions rest upon, and are largely determined by sex.

The special senses of touch, taste, smell, sight and sound begin to develop soon after birth. Their exercise controls to a large extent the growth of the mind and the ultimate mentality of the individual. But contributing even more than these special senses to one's mental development, individuality and personality is what has been called a special sexual sense. This is a constantly present stimulus, impressing and influencing the brain and the nervous system and thus exerting a governing influence upon every organ and cell and every physical and chemical process within the body. Pronounced changes occur in boys and girls as they undergo transition from girlhood and boyhood to the period of young womanhood and manhood.

From this time on there is no further looking upon life from the simple point of view of the child. Femininity or masculinity manifests itself in the thought processes. The mating instinct begins to develop, each sex seeing in the other what it has been unable to see before, and beginning—consciously or unconsciously—the search for a person of the opposite sex whose characteristics stimulate and attract the seeker.

Anything which so permeates, activates, directs and modifies human bodies and functions as does sex cannot be either "good" or "bad." Sex is not "moral," nor is it "immoral"; it is *non-moral*. It does not involve morality and has no relation to it. Sex is neither ethical nor unethical, religious nor irreligious. The sooner this fact is generally accepted, the sooner will there be normal sex expression, and, through this, more happiness and contentment and fewer physical and mental disorders.

It does not follow, however, that all *conduct* pertaining to sex and all *thoughts* of sex are clean and proper. Obviously conduct is something entirely different from thought. Thoughts and feelings may arise spontaneously; hence one is not always responsible for them. During the time of life when men and women are sexually active, or capable of being so, they will all have thoughts and emotions regarding sex which may be regarded as anti-social. These are outside the field of morals and ethics, for their origin cannot be controlled. But if such thoughts were *dwelt upon* and elaborated, brought to mind consciously, or acted upon, the question of morality arises. Sexual desires are no more sinful than other physical desires; but their gratification may be reprehensible to the last degree. They should be controlled.

Dangers of
Sex
Ignorance

Fire, electricity, edged tools and explosives—all valuable servants of mankind—may be misused. One uses an ax to chop wood for cooking and heating or—one may kill a neighbor with it. There is nothing moral or immoral in the ax, but there is in the conduct of the man who uses it. Confusion of ideas in the minds of many, however, results in attributing to the thing itself the evil of the abuse of the thing. This can be seen plainly enough in the matter of the ax, but in other similar cases it is not always so apparent. Some elderly people, for instance, have a prejudice against the violin because, as a "fiddle," it provided music in their younger days for the less "religious" to dance to. Since dancing was a sin to many people a generation or so ago, the "fiddle" is regarded by them as an instrument of the devil. There is nothing moral or immoral in any musical instrument; but practically all musical instruments have been used in immoral places and to arouse the mating impulse. Just so, one may use sex properly and



PHOTOGRAPH UNDERWOOD & UNDERWOOD

In Mohammedan countries especially, the practice of veiling the face is an accessory to customs of clothing. In this photograph the second man from the left with black veil is the Sultan of Agadez (in the Sahara) with his wife at the extreme left and his male attendants at the right.

wisely or one may abase and abuse it. Yet there is nothing inherently sinful in sex; it is only the man or the woman who is sinful in his or her attitude toward and exercise of sex. One's thoughts and conduct count, not the sex fact itself; thoughts and behavior are determined by the individual level of the mind and spirit.

Prudery and
Sex

It is clear, therefore, that a proper psychological attitude is essential to a rational comprehension of this subject. The traditional puritanical notion that "sex is vile," that the reproduction of human life is somehow unspeakably sinful, disqualifies one for a logical consideration of the subject. Notions of this kind have nothing to do with the realities of life and reasoning from false premises can lead only to error. When one realizes that the channel through which life is perpetuated and all the processes concerned with it are essentially as

pure as any other phase or fact of life, one can order one's conduct on a rational and healthful basis.

PRUDERY VERSUS PURITY.—No subject of such general interest and importance to mankind has been so steeped in ignorance, bigotry and superstition as this of sex. There is no subject regarding which speech has been so fettered and thought so suppressed. Freedom of speech and thought on religious and political matters has been won, but not even freedom of thought on the subject of sex has been secured. By degrees, civilization is imparting a wiser attitude toward the subject, but much undoing of past vicious teachings is still necessary. There is more leniency in attitude and action toward various phases of sex than formerly, yet in some matters minority opinions still rule, especially before the courts. Such a condition breeds sham and hypocrisy and drives the whole subject into dark and devious ways for expression. The young are not permitted to acquire through legitimate channels the simple truths that would take the mystery out of sex. As a consequence, many people go through life in almost complete ignorance of any except the most crude and rudimentary phases of the phenomenon.

The Passing
of Prudery

Starting with the belief that sex is a mystery and that it is unimportant except as a physical exhaust valve, many people still pretend to ignore it and try to suppress any desire for enlightenment regarding it.

There may be some matters in regard to which ignorance and superstition are comparatively harmless, but in the case of sex they are exceedingly dangerous. The person with erroneous ideas of sex is certain to wreck the happiness of the one he or she loves, since the sexual relation is so involved with love, and this relation cannot be normal if the attitude toward sex is abnormal. The mutual destruction of love by men and women through sex ignorance may take place between the young and unmarried as truly as between husbands and wives; and, more than by all other factors combined, children are estranged from their parents by blindness and bigotry, ignorance, errors and falsehoods regarding sexual matters.

During the first five centuries of the present era, when Christianity and paganism were joined in a life-and-death struggle, there developed a new attitude toward, and a new

philosophy regarding sex. The poorer classes, so downtrodden as to be unable to obtain the bare necessities of life and despairing of any improvement in their condition, eagerly espoused the new religion which preached a life hereafter for those who denied themselves the pleasures of this world. Paganism gave way before the promise of eternal rewards and the new religion became a social movement, spreading from the slaves and freedmen to the upper classes.

Sex in the
Dark Ages

Early Christianity considered sex sinful—an idea diametrically opposed to the pagan belief which apparently did not at all connect sex and morals. Life on earth was considered immaterial, and it was believed that the end of the world was near. Men even submitted to castration that they might the better serve their new God and be less susceptible to temptation. Sexual intercourse was condemned as a sin, and reproduction was considered unholy. As a result, women were loathed and despised. "Every woman," said Clement of Alexandria (Titus Flavius Clemens), "ought to be filled with



PHOTOGRAPH EWING GALLOWAY

Among the Andaman Islanders, a pigmy tribe which lives on islands in the Bay of Bengal, the bridal pair sit on the ground, the bridegroom in the bride's lap, while their relatives squat around them in a circle. They all utter weird cries, apparently an incantation inspired by a strong religious sense of the mystery of sex and reproduction.

shame at the thought that she is a woman." Temptation itself was a sin and woman was man's greatest temptation, "the gateway to hell," "the incarnation of evil." One of the great religious leaders of the day, said to have been happily married, advocated celibacy and those who wanted to insure the salvation of their souls practiced continence.

Whatever was pleasing to the body was held in disfavor; hence sex was regarded as not only worldly but unclean. Intercourse and reproduction were tolerated (until the end of the world should come); but those who so indulged loathed themselves and their women; and the women, feeling themselves degraded and perhaps "lost" so far as the future life was concerned, tried to stifle every sexual impulse, even their desire for motherhood. Nakedness, since it stressed the physical body, was thought to be grossly sinful. These beliefs have had a disastrous influence upon morality through the past centuries and are still active for evil.

Conceal-
ment and
Sex

Thus arose prudery, in the sense of affected and excessive modesty. This extreme attitude shifted gradually, partly because the world did not seem likely to end soon. Men rarely thereafter, out of religious devotion, became eunuchs, and eventually they came to look upon women and sex as necessary evils.

The fact that most of the phases of sex are associated with emotion renders clarity of thought in this field difficult; for emotions are enemies of honest and unbiased thinking. Hence the individual is handicapped in his efforts to emancipate his own mind on this matter. Since sex is of such basic importance in life and exerts such a profound influence upon the physical condition, one should be able to think about it as rationally as about digestion or any other physical function. Fortunately an approach is being made toward this level, and the beginning of a better understanding of sex and of a more rational sex conduct has been made.

Nature's purpose in the sexual relation is the creation of new lives that the race may continue. The happiness of love may be called a secondary sexual benefit, though necessary for the fulfilment of the chief purpose. Sex and the far-reaching emotion of love are instinctively private and personal in the lives of the lovers. It is right and proper that this

Privacy and
Secrecy Con-
trasted



BASED ON POSTER OF U. S. PUBLIC HEALTH SERVICE

Public drinking cups and common towels are a serious disease danger. Although the germs of syphilis and gonorrhea do not live long outside the human body, infection may result from such indirect contacts.

should be so. This element of privacy can be ignored only at the danger of developing vicious perversions.

There is a vast difference, however, between the privacy of love and the secrecy that obscures all questions of sex. While one is instinctive and proper, the other is artificial and dangerous, driving boys and girls out of their homes to find the solution of mysteries that baffle them. This attitude shields no

one, and by covering up perversities, licentiousness, and promiscuity, it degrades sex and the life that is born of it. There are those who strive to order their lives on the illusion that ignorance, under the guise of innocence, is the proper attitude toward sex. This false reasoning has never worked, and there are a thousand factors which render impossible the dream that it ever can work.

Immeasurable harm has been done by the belief that the rule of innocence should apply more rigorously to the girl before marriage than to the man. In practice, this idea is a cause of prostitution, which has been largely responsible for the spread of venereal diseases.

Out of this double standard came another destroyer of love and married happiness. These "innocent" young women were never really ignorant of what was tolerated in the world outside their sheltered sphere. One of the phases of this vulgar

secrecy is the whispering into the ears of these innocent girls that which couldn't be told in a more open and honest manner. They learned too early in life of "those other women" and of their relations with men. Because of this fact sex became to them a thing of horror which, in many cases, destroyed their power of responding fully and freely to the sex appeal of their husbands. Often the marriage relation became a thing dreaded and feared. In this way frigidity was developed in many women.

All this was the result of an incongruous effort to reconcile the overpowering sex impulse of the male with the needs of civilized society; but it brought happiness to few, misery to many, and helped to perpetuate the belief in the sinfulness of sex. When a girl, raised in a home of sex suppression and hypocrisy, marries a man who has gained his sex knowledge in the underworld, her attitude and emotion blend with his as badly as if they belonged to races from different planets.

In its worst stage, prudery hid even the bodies of babies, than which there can be nothing purer, sweeter, more innocent. Many people still consider it immoral to expose the bodies of toddling children, or even of infants to sunlight for the good of their health. Many remain away from bathing beaches rather than see "bold" and "brazen" women exposing their forms, or they go merely to look for what seems to them obscene.

Clothing and
Bodily De-
velopment

The person with such a mind is a sexual pervert, a moral menace. He interprets language and actions as having application to sex when no such application is intended, or finds vulgarity in references made without such motive. Knowing no decency and no purity, he cannot recognize them when he sees them in others. His attitude toward sex engenders hypocrisy and all manner of secret and unnatural practices.

The attitude of the average person toward sex depends largely upon social and racial taboos; upon early teachings, environment and, in general, culture. What is accepted as proper among some peoples is tabooed among others. All races and groups of people have their taboos and their licenses; yet in these there may be no question of morality or immorality. For instance, the Eskimo may offer his wife to the casual visitor, and both he and his wife will feel offended

Codes of
Sexual
Morality

if the offer is refused. To them there is no immorality in the act; this is simply their method of expressing hospitality.

Among many tribes of savages—in the Pacific islands, in Central Africa and elsewhere—sexual practices exist that seem strange to Americans. Not only do they permit sexual indulgence during adolescence, but they permit and encourage sex play among their children; and when the sexual cravings become more urgent, after adolescence, they even provide special dwellings where they can be gratified without molestation. Yet they have their taboos, to which they hold as religiously as Americans hold to theirs. They are not totally promiscuous, for even in adolescence it is expected that one pair will remain “true” to each other for some time, and there is a strict taboo against incest (intercourse between brother



PHOTOGRAPH PACIFIC & ATLANTIC

Among practically all peoples there is great concern for the happiness, peace and stability of marriage. Here, Zulu bridesmaids and wedding attendants, in a bizarre dance, are sweeping away evil spirits who might, as they believe, bring trouble to the marriage that is being celebrated.

and sister and with uncle or aunt or other members of the immediate family). As a rule their marriages, except those of the chiefs, are monogamous. In fact, it has been claimed that "civilized" people could learn much from them in the art of love and rational sex conduct—at least, after adolescence. Also it has been said that there are hardly any savages in such lands as Africa—except those that arrive from Europe. There is nothing immoral in these unmoral savages, nothing licentious in the strict sense of that term.

From the prudish state of our society many today are making noble efforts to find a way of escape. But the escape is not easy, since mid-Victorian minds and medieval laws still, to a large degree, rule sex conduct. Many cramped minds are still high in authority, not only in government but in church and school and general society. It is part of the traditional faith of such people that honest discussion of, or the giving of information concerning sex must be evil. Hence it is difficult for anyone to help others to a better understanding of sex without being misunderstood and condemned.

Secrecy and
Hypocrisy

Against such minds as determine for the masses what is right and what is wrong, the honest reformer has no better chance of proving the purity of his intentions than had the man who, when accused of crime, was made to walk through a raging fire on the theory that if he were innocent he would not be harmed.

The moment anyone attempts to turn the light of truth upon the sex problem, moralists conclude that the light-bearer must be an advocate of the evils he seeks to expose. There are few sufficiently stout-hearted to risk ostracism and the wrath of society in general and the self-appointed arbiters of society and morals in particular; but there *are* a few pioneers and they are the ones who are preparing the way for an ever-increasing army of sex missionaries.

Since the earliest days of his public career, the writer has held the honest and profound conviction that the traditional policy of silence, hypocrisy and secrecy regarding sex matters was and is one of the greatest evils that afflict society and that the real evils of sex can be successfully fought only with the aid of truth and light, given freely not merely to the leaders in high places but to the rank and file of mankind.

It seems to him that the most effective way to bring about a better attitude toward sex is by a dispassionate and truthful presentation of the subject, giving just as much attention to the beauties and the enjoyments of sexual life as to its dangers and miseries.

The present generation has made tremendous strides in

getting away from the fetish of prudery. One is no longer shocked when a mother nurses her baby; nor does one condemn the display of feminine ankles and legs observable on every street of every city and town in the land; nor does one hesitate to spend all the time necessary in the bathroom to make oneself wholesomely fresh. Clothes, especially women's clothes, have become more rational. The propaganda for sun and air-baths, as a result of the demonstration of the health value of sunlight and air in direct contact with the body, is working a further change. A greater

Clothes
and Sex
Appeal



PHOTOGRAPH PACIFIC & ATLANTIC

That clothing may be used to accentuate sexual appeal to greater degree than does lack of clothing is illustrated by this type of costume. The photograph shows a promenader upon a beach on the South Atlantic sea-coast.

degree of exposure of the body on the bathing beach and in the theater and on the screen has destroyed much of the old idea that the baring of a woman's legs and the revealing of her undraped form can have no purpose other than that of inciting the lustfulness of man.

The beauty of a woman's body has no more to do with sex attraction than the sparkle of her eyes or the smile of her lips or the music of her voice. There is no more reason for hiding her body than for hiding her face. Here reference is made, of course, to exposure of the general contour and of the arms, legs and trunk, not including the organs of sex. Because they are secondary sexual organs, the breasts of woman may also be excluded. A state of society in which at least this stage of nudity (as distinct from complete nakedness) was universal or common would be infinitely more wholesome than that from which humanity is now emerging.

**Bodily
Beauty
and Sex
Appeal**

Any unbiased scientist who has studied this subject among savage races knows that nudity, far from inflaming the sex desires, has the opposite effect. In speaking before the Sexual Reform League in London, in 1929, George Bernard Shaw said that clothes add to sex appeal. Among other things, he said: "Two sets of people cultivate sex appeal. One aims to minimize sex appeal by a maximum of clothes and the other aims to maximize sex appeal by a minimum of clothes. They are both hopelessly wrong; the only method of creating sex appeal is by clothes. The voluptuous woman of the Nineteenth Century was a masterpiece of sex appeal. Everything about her, except her cheeks and nose, was a guilty secret. The Victorian age was exceedingly immoral and affected with the disease of exhibitionism. In England nudism, as practiced in Austria and elsewhere, is unpopular, because people still cling to sex appeal. Women largely have progressed toward nudity, wherefore sex appeal has vanished. Bring back clothes and it would be increased."

Bertrand Russell, speaking before the same league on the same occasion, said that when nakedness becomes the fashion it will be necessary for women to resort to some other style in order to attract men, inasmuch as their nudity will ruin their sex appeal. This is the attitude of a great many frank and unbiased thinkers. It is the hidden thing that becomes the de-

sired. The scientists say that in tropical countries clothing originated in instinctive playing at hide-and-seek to inflame curiosity; in other words to incite sexual passion. The unusual is the sensational. In a clothed society the nude woman is conspicuous and men's attention is centered upon her. In a nude society it would be the fully clothed woman who would attract attention.

Nudity—
Male and
Female

The fact that most of this discussion regarding nudity seems concerned with the female rather than with the male body may need some explanation. Certainly the male body is not less beautiful than the female. Indeed, many artists maintain that the body of the well-developed man is a thing of intrinsically greater beauty than that of any woman. But it must be conceded that the nude male body (if the sexual organs are covered) gives little concern to even the prudish mind. It is the female body that agitates those who are obsessed by sexual fears. The reason for this may be instinctive, arising from the fact that the female is the sexually-pursued, and therefore the sexually-alluring sex.

Now that girls and women have earned the right publicly to possess legs, they are likely to demand still more freedom of the body. Further progress in this direction must be an evolution, but may come with accelerating speed. Indeed, many European countries are already far ahead of America in this respect. Throughout Europe, especially in Austria and Germany, nude cults exist and yet the morals of those peoples do not seem to have degenerated. The limits of the movement cannot be foretold, but it may be assumed that it will stop short of complete nakedness.

Let it be emphasized that clothes cannot make people moral. Observation of nude and clothed peoples has proved the opposite to be true. Morals depend upon training and modesty. Custom changes the reaction toward bodily coverings or their absence. The bold woman was robbed of her advantage when other women began to display their forms. When the evolution now in progress has been completed, women may frankly hope to win masculine admiration by the possession of beautiful bodies, evidence of health and perfect womanhood, as they have hitherto by beauty of countenance.

Beauty of form is a much more honest basis for love than

mere facial beauty. Each, of course, is desirable; but beauty of form is a much more reliable evidence of fundamental good health and capacity for love and maternity than mere facial beauty. Under the old practice of body-hiding many a man wooed and married an attractive face only to find that he was mated with a woman whose body was so poorly developed and so unattractive that his love turned to repulsion. Too often this meant a neglected wife and outside loves for the man. One result of the increasing escape from prudery is that the well-developed woman, who may have a less attractive face than some of her weaker sisters, has a better chance to win the love of a worth-while man.

Faces are not easily changed, but honest effort will vastly improve the form and bodily beauty of any young woman and of many older ones. Hence girls and young women who, in a prudish age, would have had a poor chance in the matrimonial market because of the lack of facial beauty, may today, by developing attractive bodies, win the admiration of the sensible man who looks below as well as above the chin when choosing a wife. True beauty is synonymous with health, and health is not local; it resides in the entire body from the hair to the toes. No man or woman should marry until he or she knows the physical, mental and emotional make-up of the prospective mate. This it is easier to know now than in former years, because of the greater freedom of the body and the franker discussion of all subjects concerned with life.

Clothing and
Body De-
velopment

A natural curiosity about the body begins early in life, but curiosity about sex is aroused chiefly by the manner in which some innocent question has been answered or ignored. Children early in life notice the physical differences between the sexes, but their guileless inquiries can be so answered as not to arouse a morbid interest. The answering of such questions may determine the development of a normal or a biased point of view of sex.

No one can doubt that the average parent has a deep and sincere love for his or her child. But parents not infrequently are the greatest menace a child could have. Especially is this true of mothers in regard to their daughters. They consider it their duty to "shield" young girls from everything impure, and since, to them, sex is the most impure influence and fact

in life, they so represent it to their daughters, not realizing that they are thus picturing their own inharmonious and unhappy sexual life. These girls are sent to the marriage altar and to the nuptial couch "innocent," ignorant, helpless, afraid and unprepared to meet their husbands as equals in the new life of which give and take, reciprocity, interchange and compromise form so large a part.

**Results of
Puritanism**

"Good women," are the cause of much indecency, much misery and unhappiness, of which they are totally unaware. And "good men" do almost an equal amount of harm. It may seem a cruel thing to say, but "good" women and "good" men, with their puritanical, prudish, obdurate minds, have ruined more girls and boys than bad men and women ever have. Having substituted lies and deceit for truth, they have perpetuated man's greatest moral hoax—the hoax that sex is evil and that legal marriage without love is good.

When an attempt is made to conceal sex facts, the sex instinct grows rapidly. Youth is certain to yield to the powerful temptation to investigate, and in investigating learns much that had better not be learned. Such ignorance and misinformation is likely to be carried into, and perhaps throughout married life, making misery all the way. If the mystery is stripped from sex and the facts are taught, less knowledge likely to blight the body, mind, morals and happiness will be obtained through underground channels.

MARRIAGE AND HEALTH

Section 2

MARRIAGE AND ITS HISTORY.—The history of marriage is the history of progress toward sexual morality, every step of which, consciously or unconsciously, has had as its object the welfare of the race, and particularly the welfare of the children of the race.

Among the lower animals the union of the two sexes is always for the sole purpose of procreation. Yet many animals practice monogamous marriage; that is, one male and one female pair and have the companionship of each other for a season or, infrequently, for life. Monogamous marriage arose at an early period in the history of man and for many ages woman's virtue has been considered her most valuable possession.

Today conditions seem to indicate that civilized nations are losing their regard for monogamous marriage and female virtue; even woman herself is not so jealous of her virtue as formerly. The present sex freedom has been termed a sexual revolution. Judge Ben Lindsey has called it "the revolt of youth"; but it is not limited to youth. There has been a decided change in attitude toward marriage. In fact, this institution seems more unstable in America than elsewhere, though the same question is agitating English minds. It cannot be denied that marriage is entered into less seriously than formerly.

**Marriage.
Past and
Present**

Divorces are increasing and probably infidelity also. Trial marriages and trial separations are numerous. Marriage, divorce, and remarriage take place in rapid succession and children are shunted back and forth between their parents whom they thus may eventually despise, while the parents are so interested in their own pursuits that both their parental duties and the disrespect of their children are ignored. Women have earned economic independence, so, unless marriage

promises more in the way of success and social standing than they can secure by their own efforts, they are little interested in it. Other things have become more important to youth and many older people than marriage; hence the tendency to avoid marriage, or to postpone it until well after the most favorable age for it, namely, in or before the early twenties. Nevertheless the sexual urge, which is as natural as hunger, remains and seeks gratification.

Mating In-
stinct In-
eradicable

Youth is rarely interested in sublimation of sex, and it seems likely that those in whom there is an unconscious sublimation either are late in maturing or have a deficient sexual instinct. Many young people, especially girls, have had sufficient moral training and have enough instinctive modesty and will-power to protect their chastity. In spite of that, "nibbling" at love is almost universal among all except the senile. Even those who permit only minor liberties play with these liberties and derive erotic excitement from them. In all cases there is likely to be a progressive increase in liberties allowed until the strength of the mating urge sweeps even the virtuous across the threshold.

CHANGING CONDITIONS.—Sexual vigor is closely associated with strength and energy of the muscles. In earlier stages of civilization both sexes expended much physical energy in obtaining the means of life. Nowadays less physical strength is thus spent, so possibly energy may be concentrated to a greater degree in the sexual system. Formerly there was in the home an honest attempt at the development of culture and companionship; but today parents have so many outside interests and the father is so preoccupied with his efforts to secure material wealth that home training is almost entirely neglected and children, youths and maidens are allowed to find their amusement, education and "culture" wherever they can.

Religious training during the Victorian era was practically universal except, perhaps, in the largest cities. Nearly everyone went regularly to church, those who did not being considered profane and disreputable. Church attendance and outward display of religion never make one moral but regular attendance at a house of worship establishes at least some moral restraint. Today thousands of young people have no



PHOTOGRAPH BY WING GALLOWAY

Among the natives of the New Hebrides, islands in the South Pacific, the male natives isolate their offspring from the females of the tribe. This is a form of taboo of the tribe's women.

religion and little interest in ethics. They are, in fact, pagan or worse. A pagan may be as moral as the most devout Christian, the difference being in outward acts of worship rather than in morals; but without a constant goad toward morality many persons, perhaps, are inclined to run wild.

Put all these factors together and it would be surprising if there were not much sex freedom and license. This sex freedom is fraught with grave danger to the young people themselves, to society in general and to the future of the race. Knowledge of means for the prevention of venereal disease is wide-spread, the World War having furnished the opportunity for the dissemination of this information. But many persons

Sex Morality
Today

are careless, thoughtless, reckless, ignorant and gullible. Hence these diseases are still prevalent.

Contraception also is better understood by the youth of today than by most married adults of a few decades ago. This information has been gained in spite of the efforts of moralists to keep it hidden. But again many are careless, thoughtless, reckless, ignorant or gullible, and hence many become pregnant. Infanticide as a result is not uncommon and every city has foundlings to provide for. Sex-free boys and girls often are promiscuous, and youthful promiscuity does not augur well for successful marriage. Possibly both men and women are naturally polygamous; when they begin by being promiscuous they may continue to be so after marriage, despite vows of fidelity.

Physical
Energy and
Sex

Working side by side with girls in the business world, man no longer places them on pedestals and there has been a progressive relaxation of vigilance on the part of each. Familiarity ripens often into general misbehavior and disregard of conventions. Contrast the minuet of many years ago, or even the dances of thirty years ago, with the dance of today. The close physical contact of the dancers, the scant and diaphanous clothing of the girls, music that arouses passion, loosen practically every bond restraining the dancers to decency and morality. It is not surprising that a fairly large percentage leave the dance hall inflamed with amatory and erotic desires. The present-day books, also, are extremely suggestive and may stir the sexual imagination to such a pitch that the sex desire becomes imperative. The motion picture, it is claimed, breaks down the reserve of many girls and makes them yearn for the voluptuous pleasures of the "heroine."

An attempt has been made to emphasize some of the conditions that lead to slipshod morals, sex freedom, and sex license. The condition is here and the problem cannot be dodged. The question is, where will it all end? No one as yet can answer that question. It seems certain, however, that the world will never go back to the moral code of a few decades ago. Though the present is disconcerting, the future is not in grave danger. This period is merely one of readjustment. It *is* a revolution, and as a revolution, though the participants are unconscious of it, it has a positive goal. That goal is a



PHOTOGRAPH RKO PRODUCTIONS

PLATE 44. The outcome of a marriage is closely dependent upon the development of true companionship between those married to each other.

better understanding between the sexes; woman emancipated from wedded slavery; her escape from the uncomfortable and dangerous pedestal to which man raised her; and finally her refusal any longer to be shifted and shunted about at the discretion and pleasure of man. Obviously the greatest change has been in the feminine half of the race. Men have always been ready and eager to possess the female, but there have always been conventions and laws, the purpose of which was to protect men in their rights to the particular woman or women whom they claimed.

It is evident that something of the refinement and solicitude that existed formerly between the sexes, something of the chivalry and the tenderness of their relations, has been lost. Yet when this movement of sex freedom has had its effect and stability is again restored, doubtless it will be found that a definite gain has been made. Man will have developed a more wholesome and genuine respect for woman, based upon a clearer understanding of her physical, mental, emotional and sex nature. Woman will have learned the weaknesses of man, his perversities and peculiarities, and how to use these for his and her good. True companionship will develop between the sexes, and man will find that his need of woman is absolute, that she is of as much importance to him in the new relationship as she was in the old.

Companion-
ship between
the Sexes

No doubt there still will be a preponderance of women with the mother instinct, women "born for motherhood" and for home-making. In all probability there still will be many men who will have need for such women, whose worth they will be able to appreciate. Hence a semblance of the conventional marriage of today will be carried into the future, though almost certainly on a more restricted scale. Children will still be born into the world and loved and cared for and reared to be useful citizens. For a long time to come there still will be an occasional large family, though as birth control becomes generally recognized and legitimized, small families will be the rule. But the race will not die out for want of the instinct of motherhood, which, with rare exceptions, is inherent in women. Nor will license develop to such an extent as to degenerate the race. Though the present transition stage is far from ideal, the outlook for the future is not discouraging.

There is no need to endorse sex license, but there is need for more tolerance. Eventually more tolerant laws will be passed. While there is turmoil at present, it is confidently believed that men and women are headed toward stability and understanding. In everything that really matters, the world is steadily becoming a better place in which to live. In comparison with the countless centuries of human existence the present period of sex unrest is but a flash in the pan. Whatever transient harm results will be overbalanced by permanent good. The sex urge and the mating instinct will remain as long as humanity lasts. Gradually mankind will learn how to use these instincts for the universal good rather than for individual selfish pleasure—and possible self-destruction.

Marriage is of a dual nature. It is an institution, and it is a purely personal relationship between a man and a woman. In the arrangement of primitive marriages love and affection, as civilization knows them, were of less importance than convenience and necessity. The family was a unit of production, a little state within itself, and it was necessary that it should remain comparatively stable. Since those times marriage has passed through many phases—from that in which the racial instinct ruled and only a sexual mate and willing worker were required or desired, to that in which both participants are highly individualized and in whom there is need for mental and spiritual as well as sexual mating. In the personal relationship between the partners, marriage has passed from the stage in which the woman devoted her time and energies exclusively to motherhood and domestic obligations to the stage in which she has an individuality of her own, with her own personal interests.

Marriage in
Primitive
Peoples

The institution of marriage has varied, and still varies, according to the state of development of a people. From the earliest times it has existed and from a study of primitive peoples much may be learned of marriage as it was practiced before the dawn of history. Throughout the course of this institution there have been various motives for marriage. Possession, indisputable and inviolate, by man of his mate, is a primal motive of marriage that has been stressed by leading writers on human institutions. Originally the majority of marriages took place through the need for mutual aid in the



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Civilized weddings are not always devoid of picturesque custom. This photograph of bride and groom passing beneath oars held by the husband's rowing-club-mates, helps to prove this.

struggle for existence, and this still is the motive among some primitive races. The desire for children also has been a motive, but doubtless less often than is commonly supposed. Some primitive peoples have not associated the sex act with pregnancy, but have attributed childbirth to supernatural agencies.

Mutual sympathy operates as a motive in civilized countries, but it is doubtful if it was or is an appreciable factor among many primitive tribes. Passion and sensuality have formed the basis of countless marriages, while temporary infatuation has been responsible for as many more. It might be well to state that in such cases the marriages not infrequently have resulted happily. Many marriages have been entered into through the ambition of one or the other of the participants, or for financial profit, or have been merely drifted into through carelessness and indifference.

It is, perhaps, desirable to survey the long road up which mankind has traveled from the earliest marriage custom to

**Bases of
Marriage**

the present conventional parental marriage. Among the interesting and important books on this subject are: August Bebel's *Woman*, Westernmark's *History of Marriage*, Morgan's *Ancient Sociology*, Keyserling's *The Book of Marriage*, and Frazer's *The Golden Bough*.

**Tribal
Promiscuity**

PRIMITIVE SEX CUSTOMS.—In low stages of savagery man may have been promiscuous, after the manner of lower animals. Yet there are rarely found today any races among which this practice exists, except premaritally. In this complete sexual promiscuousness, incest would be a common practice, and unions between brother and sister, father and daughter, mother and son would occur. But taboos against incest were established by primitive peoples at an early stage of their culture, though the reasons for these taboos have not as yet been discovered. However, in these tribes there are various conceptions of relationship, and as a result they often taboo marriages between individuals or groups of individuals regarding whom civilization would find no contraindicating factors.

Just what the first form of marriage was is not now discoverable. It is certain, however, that marriage by capture was an early form practiced by widely separated tribes. In this case there was no ceremony, of course.

**Group
Marriage**

Another early form of marriage—or the earliest, according to some authorities—presumed to have been practiced was *communal* or group marriage. In this form all the women of a social group belonged to all the men in the same group. This form is not known to exist today, and some authorities question its existence at any time.

A type of marriage considered by some as a survival of communal marriage is the *punaluan family*. This consisted in the marriage of a group of brothers to a group of sisters, each woman being the wife of all the men and each man the husband of all the women. This form of marriage was formerly prevalent among the natives of Hawaii, and is presumed to have existed elsewhere.

Another form of group marriage, still existent among several tribes of primitive people, especially certain tribes in Australasia, includes *monogamy*, *polygamy* and *polyandry*. A man may form a monogamous marriage, but for various

reasons, such as the receipt or offer of presents from other men or the desire of the wife for another husband, may consent to share her, while he himself may take partial wives in addition to his chief wife. The chief, especially, shares the wives of other men of the tribe. The wives live with their husbands, but occasionally give themselves to their partial husbands. Men who have several wives of this sort consider multiple marriages an honor and are looked up to as important personages; and the more partial husbands a woman has the more highly she is regarded by her primary husband.

Primitive peoples, indeed certain uncivilized tribes today, have not realized that sexual congress results in childbirth. Even with recognition of the truth of this matter, promiscuity clouded definite knowledge on the mother's part as to who was the father of her children. Under such circumstances, certainty could be assured regarding the rightfulness of inheritance only through the mother. This gave rise to *matriarchy*. The children belonged to the mother's clan; the mother was the head of the family and the guardian of property, religious rites and traditions. This social order exists today in several tribes of Australasia.

The next evolutionary step in marriage consisted in the replacement of group or communal marriage by individual marriage, or marriage between single pairs, yet without exclusive cohabitation. This union continued during the pleasure of both partners, which often was for life. Marriage between relatives was prohibited. The male left his own tribe and joined the tribe into which he had married. In this marriage the children knew their father as well as their mother, but kinship was reckoned through the latter and they belonged to the mother's tribe, while the fortune of the family was transmitted through her line. Woman was undisputed mistress of the house. The males were merely required to provide food and the necessities of life. They might be fond of, and help care for their children, but it was the mother's brother to whom they looked up and from whom they accepted direction. When the man died his weapons and clothes, which constituted his only personal property, were bequeathed to the tribe to which he formerly belonged. The main fortune remained in the clan of the mother. Among some tribes the wife might join her

Evolutions
of Marriage

husband's tribe and yet retain the rights of descent through her line.

When the nomadic period of human evolution merged into the pastoral, with the training of animals and the breeding of herds, there developed sources of wealth before unthought of. The males, who formerly had been only the providers of food, now assumed a more important rôle, since they not only provided but also controlled the sources of food. This automatically made man ruler and head of the family, as well as leader in war. With this increase of power came an increase in the possessive inclinations of man, the beginnings of the policy: "His to take who hath the power; his to hold who can." Lands, herds and chattels became private property, and the principle of descent through the male line was adopted. This brought into being one of the fundamentals of the present marriage system, in which strict fidelity is exacted from the wife. Obviously, inheritance in the male line required that the father should know his own children. This led to the *patriarchal* family, as described in the Old Testament, founded upon the marriage of one man with one wife or with several wives and concubines. This form of marriage became common at various culture levels.

Responsi-
bilities of
Marriage

The present conventional marriage among practically all enlightened races is based on the parental system, which means that, except in certain localities, both parents have equal rights, the children are related to the families of both parents, and they are heirs of both parents.

It has been shown that the progressive changes in the marriage relations of the sexes were made definitely in the interests of the children. Promiscuity gave way to the consanguineous marriage, after which came the punaluan family and the pairing family, the latter gradually evolving into the monogamous marriage and then to the parental marriage, each advance tending to promote the welfare of the progeny. What the marriage of the future will mean to the offspring cannot be foretold. But aside from the moral issue involved, the present-day laxity brings great concern to thinking minds because of its probable effect upon the physical, mental and moral welfare of children. If a workable arrangement for the care of children could be formulated, many people would be

reconciled to the changing relationships between man and woman.

* MODERN FORMS OF MARRIAGE.—*Monogamy* is marriage with but one partner, man or wife, at the same time, as opposed to *bigamy* or marriage with one person while already married to another, and *polygamy*, or the having of two or more wives or husbands at the same time. *Polyandry* is the specific term employed to denote the marriage of one woman to two or more husbands. Monogamy is the rule now in all civilized countries, bigamy being a criminal offense in every Christian land.

The history of the change from multiple marriage to monogamy has been covered. Here the physical, mental and spiritual advantages of monogamy are to be considered.

Without doubt there can have been no more prominent factor in the social evolution of man than the development of the single marriage and the establishment of the home on this basis. Under this plan of union each parent knows his or her children and every child knows its two parents, and this knowledge is the basis of a better understanding between all members of a family and a better training and guidance of each new generation.

Results of
Monogamy

Radicals may propound the erroneous idea that the conventional monogamous marriage has proved a failure. The conventional marriage may have failed, because of ignorance and superstition or numerous other influences. A large number of people who apparently are monogamous are not or have not been so in reality; surface fidelity is not genuine monogamy. Doubtless a broader knowledge will be necessary before monogamy will be actual as well as apparent. But the underlying principles of monogamy give promise of greater harmony and greater progress than does any other plan of union ever devised.

The monogamous instinct is undoubtedly in process of evolution. It increases as man's psychic progress increases. There would seem to be nothing superior to the monogamous relations of two people of opposite sex. Upon its continuance and final complete ascendancy depend the security of mankind. This instinct has not as yet been fully acquired. The great majority of men and women at times have "fallen from

grace" in thought or deed and have strongly desired to break the bonds of a monogamous union. At times, one is held to one's monogamous instinct not so much by dominance of the instinct itself as by the fear of doing physical or psychic injury to partner or offspring. These act as powerful influences in curbing the transient sex demands and in binding husband and wife to a strict monogamic union.

While primitive peoples have no objection to sharing marital partners with others, one of the strongest instincts of civilized men and women is to keep such partners for themselves alone. The wife who experiences normal and frequent sexual conjunction not only possesses one of the greatest physical means of well-being, but has the strongest of bonds between herself and her husband.

Primitive
and Modern
Marriage

The wife knows her husband better than anyone else in the world can know him. She knows his virtues and strong points, and encourages them; she knows his weaknesses and faults, and loves him in spite of them. From "the other woman" the husband does his best to conceal his weaknesses, and make sure that she sees him at his best. However, faults and weaknesses stand out prominently and virtues are minimized when the husband fails to consider his wife's sexual needs as equal to his own and does not receive greater pleasure in her pleasure than in his own.

The true basis of the monogamic marriage should be reciprocity and mutuality in every relationship of the partners.

Polygamy.—From the nature of the conditions that win approval of the monogamous union, there is nothing that can be said in favor of polygamy. In a few parts of the world polygamy is still countenanced, but the practice is rapidly dying out. In the recent past Turkey abolished plural unions and the harem, showing the trend of civilization toward monogamous marriage. In Tibet and in parts of Mongolia plural marriage takes the form of *polyandry*, or plurality of husbands. The woman may marry a whole family of brothers, as many as six or eight, at the same time. She is the dominating personality in the family, directing the activities of her husbands, dividing their labors, sending them on hunting expeditions, and deciding which shall remain with her while the



PHOTOGRAPH INTERNATIONAL NEWSREEL

Even among primitive peoples marriage is an important social contract, and is celebrated by elaborate ceremonies. Here the members of the Valala tribe, in Northern Rhodesia, in Africa, are waiting for the beginning of the marriage dance which will celebrate the wedding of the couple seated on the rug in the foreground.

others are away. But these people are for the most part on a low social scale.

In civilized countries few contract actual polygamous marriages, but many live polygamous lives and others tacitly approve such conditions. Women who have little or no erotic instinct, who are selfish, yet socially conventional enough to marry, may willingly permit their husbands to have mistresses or even to resort to prostitutes so long as they themselves retain their social positions.

However, polygamy really means formal marriage with more than one member of the opposite sex. Of such marriages there are practically none in civilized countries. The stage in sociological evolution when such marriages are permitted has been passed. Though some people fear that the present revolt of sex will lead to a recognition of multiple unions there is little likelihood of that. The present demand is not for a greater number of permanent partners in marriage but for

**Polygamous
Marriage**

more easily attained freedom from an unsatisfactory partner; also, no doubt, for the privilege of finding a thoroughly satisfactory partner through the process of elimination—of trial and error. Promiscuous unions may continue throughout the life of the human race; but it seems certain that genuine polygamous marriage has passed, never to return.

INSTINCT AND MARRIAGE.—Whether or not marriage is a natural instinct may be debatable. But for centuries children have been educated to look forward to marriage as a state which eventually they would enter. Small children often play at marriage and have their lovers and sweethearts. These innocent pastimes help mold their future. On the surface it would seem that a subject brought before the children so early and having such a prominent place in their thoughts would be thoroughly understood, and that when they were ready for marriage they would have all the knowledge necessary for success in it. Unfortunately such is not the case. Therefore nearly as much ill health as health results from marriage. If this volume can be the means of bringing about a better understanding of sex among its readers it will have a tremendous influence upon their health and happiness.

Marriage a
Factor in
Develop-
ment

Marriage and sex are inseparable. The act of entering into marriage presupposes a sexual ripeness and a desire or willingness to enter into sexual relations. Legitimate happiness is necessary to health, long life, altruism and morals. What can bring greater happiness to man or woman than harmonious married life? On the other hand, what can bring more misery, discontent, worry and bitterness than inharmonious married life? No condition of life is capable of producing for the participants more heaven or more hell than marriage. Not merely is the body affected favorably or unfavorably; the mind and the spirit are equally influenced. The modification of health may not be apparent at once upon entering married life, though the effect begins practically at once and all too often is disastrous from the start.

The sexual diseases, called “social” and “venereal” diseases, are discussed fully in Volume VIII. They are referred to here only because they have such a direct effect upon the health and are transmitted, except in comparatively rare cases, by sexual intercourse. It might be supposed that these

could be ruled out as causes of health disturbance and health destruction in married life. It is true they are disseminated more generally in the "underworld," but it is a lamentable fact that they are also carried extensively into married life.

Even when her husband is free from sexual disease at marriage, a woman who has had no previous sexual experience may enter upon a long road of illness. This ill health may be brought about by the husband unless he naturally is gentle and considerate and is willing and eager to bring about a proper adjustment between himself and his bride. Without these qualities he is likely to be brutally abrupt, under the mistaken notion that only in this way can he gratify his bride.

Several factors may modify the effect of such an aggressive assault. It may not be harmful if for any reason (as by athletic exercise) the wife has lost her hymen, though usually this alone will not spare her. Neither may it be harmful if there is no disproportion between their sexual organs; if she is of the type that has an intense sexual craving with high sexual vigor; if she is of the relaxed, phlegmatic type; if the couple have made intimate love during courtship; or if there is early gratification on her part. There may be undesirable results from such an assault in case the hymen is intact, especially if resistant; if the woman is of a nervous and timorous nature; if she is prudish and submits to coitus because she considers it a duty; if she is cold or sexless; if she has some pelvic disorder, such as uterine displacement or inflammation, ovarian neuralgia or irritable bladder.

Sexual
Adjustment

The effect may be primarily local or nervous. In some cases the hymen is so resistant that it can be broken only with considerable force (the surgeon's knife being sometimes required), and severe hemorrhage may result. Then, if coition is resumed before the damaged tissues have had time to heal, a pronounced inflammation, with its more or less unfavorable sequences, may result.

If the bride is afraid and involuntarily creates a tension, she may be locally damaged and also made extremely nervous, perhaps hysterical, a condition that not infrequently occurs in case of a resistant hymen. The nervous symptoms may remain, gradually become intensified, and affect the woman for the remainder of her life.

Again, under some circumstances, there may be much damage to the uterine supports if the uterus is crowded high above its normal position. There may even be a breaking loose of the uterine supports. If the latter does not happen the normal resilience of these structures will permit them to recover tone in time in the average young woman. But if the same cause is repeated time after time, the uterine supports may become permanently weakened and prolapsus or other displacement ensue. If the uterus itself is not in a perfectly normal condition direct damage to this organ may result.

In some instances the bladder is made irritable, and may become almost unbearably excitable; sometimes it is actually ruptured in forcible coitus. Any of these conditions may remain long enough to have a detrimental effect upon every function of the woman.

Mental and
Physical
Sides of
Love

There are conditions less specific upon which marriage and the sex relation have an influence. Marriage, in its true sense, should be not merely the legal union of a man and a woman for sexual intercourse and procreation; it should be a fusion of two lives not only physically, but mentally and spiritually. Neither the law nor the church can bring about such a union. There are countless married people who have no more in common than if they belonged to different planets. Unless two people harmonize in most of the conditions which concern them, they are mismated. When two people not in harmony must eat, work, sleep and spend their spare time together there is almost certain to be created a nervous tension that will harmfully affect the body in all its organs and functions. A biased mental condition will be established that will further react upon the physical body, and the spirit will be warped into direct antagonism to health and happiness.

More or less internal tension is necessary for productivity, for advancement and progress of the individual; but when this internal tension reaches a certain point it reduces productivity, retards instead of advances, makes for instability. These effects reach inward as well as outward, affecting all phases of man's triune existence as an individual as well as his relation to society and the state.

The association of two people so closely as in married life has a pronounced effect upon the health. No one knows

definitely the nature of the subtle influence of one physical body upon another; but there *is* such an influence. People may be in perfect physical harmony and not be married; but perhaps never does this harmony reach so high a pitch as between a man and a woman who have lived in sympathy and understanding for many years. True, many factors influence health; but all things else being equal, the health of such a man and a woman at seventy-five or eighty would be better than the health of another husband and wife many years younger who had lived in discord and turmoil.

THE RESPONSIBILITIES OF MARRIAGE.—Judging by the attitude of some married people, one would think that marriage is one round of pleasure, free from responsibility. But, knowingly or unknowingly, anyone who enters marriage assumes many obligations. Not only is each responsible for the health and happiness of the other, but together they have joint responsibilities to society.

Where marriage and the marriage agreement are taken lightly, or where there is disharmony in the marriage state, many worse things than divorce may happen. Prostitution, the spread of disease, insanity, suicide, murder, lawlessness in various forms, may be, and often are, the result of unhappy marriages.

The greatest responsibility of marriage, however, is toward the progeny. Many thousands of people who bring children into the world have no moral right to do so, since they have no conception of the duties of parents, and may be in such a physical condition that they cannot produce normal children. Much of the "wildness" and revolt of modern youth is due to the shortcomings of the parents. The lawless gangs and the individual robber, smuggler, highjacker, yeggman, murderer, cutthroat and gunman usually are children of parents unfit for parenthood.

Parents who make little effort to instruct and guide their children cannot expect them to understand the responsibilities of life; parents who exercise no self-control will raise children with uncontrolled passions and little regard for law, order and decency; parents who are frivolous and shallow and irrational will have reckless, rash and defiant children; parents who show their children no love cannot expect them to show sympathy,

charity and gallantry toward others; parents who are unfaithful to each other will see their children relive their own infidelity and intrigues.

**Marriage and
Happiness**

The responsibilities of marriage are sufficient in themselves to cause one to think seriously before entering into an alliance that may become a tragedy. Two of the most important aims of life seem to be, and no doubt are, to be happy and to make others happy. Congenially married people give and receive a greater degree of genuine happiness than is possible in any other relation. It is the confident expectation of all who marry that they will find pleasure, happiness and contentment in the married state; but many marriages are contracted because of some pleasing but unimportant characteristics in the prospective mate, not because of fitness for the duties and responsibilities of marriage, which include parenthood.

Among the other purposes of life, and by some considered the most important of all, is mental and spiritual growth. This concerns not only the individual but society at large. Through a genuine marriage men and women are enabled to move to a higher spiritual state than is likely, even if possible, without marriage. Hence marriage operates as one of the greatest factors in human development. The responsibilities of marriage, as they affect the individual, the progeny, society and the future of the race, are so great that the institution must be regarded as a solemn and momentous covenant meriting and requiring the most earnest preparation for, and precautions against any condition that may prove prejudicial to one of these ends.

CHOOSING PARTNERS.—Occasionally one sees two people who seem to have been created solely for each other. No one knows whether this is the result of two halves of an entity finding each other, or of reincarnation, or of new souls designed and intended for one another, or simply of chance. In the present state of intellectual and spiritual development it is impossible to answer these questions.

When such affinities meet, obstacles to their union usually are swept aside. Occasionally the meeting takes place after both are married. Then if marriage is held inviolate great unhappiness is likely to follow. In some such instances extra-marital union will occur, not so much for the physical, as for

the mental and spiritual association. However, most cases of so-called "affinities" are simply infatuations and must be guarded against.

The selection of a marriage partner is accomplished differently in different countries and in different social circles. Among the Hindus of India and, to a lesser extent, in some other countries, the marriage is arranged by persons other than the two individuals who are directly concerned. Since the family in India is a necessary factor in the country's social structure, marriage in that country is practically compulsory. In addition to the stigma placed in India on the unmarried daughter, and the parental desire to avoid this disgrace, the Hindu believes that marriage will be more enduring and satisfactory if it takes place before the age of greatest attraction between the sexes; hence child marriages are arranged.

The children are prepared for marriage in the earliest



PHOTOGRAPH EWING GALLOWAY

The pride that Chinese and Japanese mothers take in their children is shown by the elaborate head-dresses and bright-colored kimonos in which they deck out the little ones, in contrast to the rather sober parental garb. This mother, on the island of Formosa, in the Japanese Empire, has concentrated her interest in adornment on her child's head-dress.

Marriage
Controlled
by Parents

years, the idea of "wife" being held before the boy and of "husband" before the girl as an ideal—not as an individual or person, but as an abstraction. This is the attitude toward the mate when marriage is consummated, particularly in the case of the girl, to whom marriage is everything. Because the husband-to-be as an abstraction, not as an individual, has been held in sacred regard and the girl has consecrated her life and her soul to him, there exists for him, when he does come, a love that cannot be understood by those who have selected their own mates. Not infrequently it happens that this idealized love of the wife for her husband is reciprocated, resulting in a lasting mutual love.

Marriage
under
Family
Control

In China the choice of a wife is a family matter, and it is the duty of the wife to serve her mother-in-law. A daughter, in fact, is educated for another's family, not her own. The man chooses his mate, but often without knowing her personally, and his relatives or friends make the proposal to the girl's family. Before marriage can take place the horoscopes of the pair are cast and compared. If they are agreeable, marriage follows.

Though based upon parental authority and without previous acquaintance between the contracting parties, Chinese marriages are, as a rule, remarkably happy and peaceful. The young wives seem intuitively to understand the art of making love interesting by increasing their personal charms; but usually there is little passionate love in the Chinese marriage, and as a result the husband occasionally will take a "subsidiary wife," and generally with the consent of the chief wife. Monogamy, however, is the rule in China. It is said that there are more peaceful marriages there than anywhere else in the world, and that the Chinese mother and children are more intimate in their relation than is the case in most other countries and with most other peoples.

Choice of
Mates

As to choice of mates, no one can answer that question for another with any degree of precision even in royal families. Marriage concerns both the individuals and posterity. These two problems are separate. If one were considering either one or the other alone one might choose a different partner for each, but when they have to be considered together the problem becomes highly complicated.

Few people are completely balanced in their make-up and development. Hence one should choose as a life companion one who will serve as a balance-wheel, who will neutralize certain elements and supply certain deficiencies. The proper mate should be complementary, able, consciously or unconsciously, to guide one through life's difficulties. Love at first sight, when genuine and not merely infatuation, is due to unconscious and conscious recognition of complementary elements in the object of love.

The eccentric or one-sided person is usually drawn to a well-balanced person, there being need for the influence of opposite characteristics. On the other hand, the well-balanced individual is more likely to be attracted to one having similar attributes because strong characters do not need to look for complementary characteristics in a mate. The person who knows himself, his favorable qualities and his shortcomings, will have little trouble in finding and recognizing his complementary mate. Therefore it is as necessary to study oneself as to study the possible partner; otherwise the choice may be made blindly, with fair likelihood of being wrong.

Balancing of
Characters

It should not be understood that it is ordinarily necessary for partners to have the same interests, desires and points of view. While marriage is a concern of mutual destiny, each of the partners has an individual rôle and separate interests and responsibilities. In the case of genius the mate may have absolutely no understanding of, or interest in the work of the genius without detrimental effect upon the union. In the average marriage, however, each should have some knowledge, at least, of the interests and work of the other, and should be sympathetic toward them. The husband should not expect his wife to learn the details of his business unless she has a particular desire to do so, and the wife should not expect him to control the details of home management. It is just as well to have an understanding about these things before marriage.

One also should learn the attitude of a prospective mate toward sex and children. Many an unsuccessful marriage could have been avoided had the partners previously understood each other's views on the essential problems and conditions of married life. A prospective mate who will not discuss

these subjects frankly and freely can at once be considered unsatisfactory. Such a mate evidently would not be helpful in emergencies nor ready to strive for "understanding" and a sympathetic attitude.

In selecting a partner one may best choose from one's own social plane, or from a plane somewhat higher. There is not likely to be harmony if the partners belong to radically different levels of life. Neither the partners themselves nor their children will be benefited by an unequal marriage. It may be possible for the one on the higher plane to raise the other; but in general the pair will gravitate to the lower level. There may be a different result, however, where a woman marries beneath her social sphere. While it is hazardous to marry a man in the expectation of uplifting him and saving him from some degenerate vice, a woman may marry, and raise to her own social level, the man of her choice.

**Eligible
Partners**

It was stated earlier that if one knew oneself it would not be difficult to find a suitable mate—provided one is in an environment supplying eligible possible partners. It is no doubt true that one knows instinctively, to some extent, what one desires in a mate. But one should not rely solely upon instinct. Realizing that they want to marry, too many have little idea what their mates should be like. Many unhappy marriages are due to the fact that the first person of the opposite sex of marriageable age who shows an interest in, or a sympathetic understanding of one, is often chosen; or that some pleasing characteristic determines the decision, such as wit, vivacity, the disposition to be a "good scout," a beautiful skin, a kissable mouth, good earning capacity, the ability to cook or dance well. Each of these may be a desirable quality, but some are not at all necessary; without others, a marriage based upon one or all of them is not likely to prosper.

One of the chief considerations in selecting a partner is the body and its health. It is not necessary that one should wed a Venus or an Apollo, but one should choose a mate who gives evidence of good health and a body free from such inherent weaknesses as are likely to be transmitted to offspring. If there is any possibility that offspring may be criminal or degenerate, it should be considered criminal to beget children.

Physical attraction undoubtedly is an important considera-

tion. Many people are so constituted mentally and emotionally that though every other pleasing characteristic is present there can be no love if the body is not attractive. Physical perfection bears comparatively little relation to mental, emotional, spiritual and sexual qualifications for marriage, provided the physical development is at least compatible with health and vitality.

Now that social custom permits a fair portion of the feminine body to be seen by masculine eyes, girls are beginning to cultivate that type of bodily development which the prevailing fashions display to best advantage. More and more girls are entering various open-air sports, "for the fun of it," in a competitive spirit, for their general health value, or for developmental purposes. Whatever the motive, there is no more wholesome factor in the selection of marriage partners than this popularization among young people of athletic sports, with their appropriate costumes. Not only does it improve health, which means happier marriage relations and happier parenthood, but it provides a better means of judging physical fitness and a more worthy basis of association between the sexes than is found in ordinary social life.

There are various ways by which a woman and a man may be judged in regard to general physical fitness and fitness for marriage and parenthood. Maturity should be considered as of highest importance. Years alone do not bring this; it is a matter of bodily growth, determined largely by the ductless glands; of mental growth, determined not only by formal education but by many other conditions. A mate should be mentally and physically out of adolescence and reasonably stabilized in disposition. A man should be able to provide a home and necessities; a woman should be able to perform her necessary duties as wife and housekeeper. She should be emotionally poised to such an extent that she will not sail "home to mother" upon the appearance of the slightest ripple of the marital sea.

Physical
Fitness

The bride is a potential mother and should have the necessary qualifications for motherhood. Physically she should be strong, and her size should not be too diminutive in comparison with that of the male. Her chest should be well developed and reasonably deep. Her shoulders and back

should be comparatively broad, her neck well rounded or at least not proportionately tiny, her spine straight, her waist ample. The hips should be fairly broad; narrow hips indicate a possible difficulty at childbirth.

**Feminine
Types in
Marriage**

If the skin is of the colorful type there should be color, not pallor; but there are many women whose complexions naturally are without pinkness: brunettes often, and those with an ivory tint. The texture of the skin should be soft, smooth and fine, for a slightly oily and satin-like skin indicates active ductless glands and hence better internal health and better possibilities for motherhood than when the skin is harsh and dry. A few pimples do not indicate a physical condition incompatible with marriage or motherhood. An harmonious married life and healthful life may witness the clearing up of these blemishes, and a proper mode of living usually will disperse them in a short time. The eyes should be clear and sparkling, indicating physical, mental, emotional and sexual health. There should be a well-formed mouth and the lips should be pink, not bloodless.

Most girls and women desire no assistance in the selection of their mates. They feel that they can rely upon their intuition, but intuition unaided by reason and knowledge is rarely a safe guide. The woman who is looking for the best in husbands and mates should know something of men in general, and her choice should be made deliberately after weighing all known factors concerning more than one possible mate.

First, a woman should want a *man*, mentally, emotionally and sexually. He is the potential father of her children and should have physical strength and health, be mentally alert, morally clean and sexually sound. He need not be a giant in size or strength, but he should be healthily strong and reasonably well-muscled, familiar with some open-air activities and not lazy. He does not need to be a big business or professional man, nor capable of attaining fame in any line of endeavor. But he should be capable of doing a man's work and of steady progress in his chosen field. He should be able to provide for the present and provident enough to consider and prepare for the future.

As for his moral qualifications, it is not imperative,

however desirable, that he should be innocent of all sexual transgressions, but it should not be forgotten that there are many moral derelictions outside the realm of sex in regard to most of which his character should be spotless. If a woman can find a virtuous man of sexual soundness who is normal in other respects and has knowledge of sex, obtained from a careful study of the subject, she should not feel that lack of

Choosing a
Husband



PHOTOGRAPH WIDE WORLD

With variable factors to consider, the relation of longevity to marriage is far from direct. Yet there is interest in this picture, showing two brothers married to two sisters with both couples simultaneously celebrating their fiftieth wedding anniversary.

perfect virginity in any way disqualifies him for the tenderest love and faithfulness. More depends on the fundamental character of the man than on particular incidents in his past.

If possible the woman should select a mate who has escaped all sexual disease. If this seems impossible then she should insist upon a reputable physician's certificate pronouncing the man fit to marry.

Many young women may consider it improper and unnecessary to question a prospective husband concerning his past. They would prefer to remain in ignorance, unconsciously or consciously fearing that ghosts of old amours will rise between them. Some will consider it useless to ask the man, taking it for granted that he will deny having had any such disease; but since not only her own health, and perhaps life, are at stake, but also the health, mentality and life of her children, every woman should insist upon knowing the truth.

The physical has been dwelt upon in considerable detail in this discussion because of its extreme importance and because it is the one readily discoverable quality. A marriage will not be a complete marriage if the physical love is not normal. But there is a mental side to consider. Regardless of how important the physical side of love may be, the mental or social side is equally important. Two people admirably suited to each other physically may marry and for a time find great joy in each other; but if they are mentally mismated their love will eventually die and their physical relation become to them unclean and indelicate.

Physical
Attraction
and Love

A great and enduring love can be founded only on strong physical attraction, plus a strong mental attraction, combined with respect and admiration. Many marriages that start on a basis of physical attraction become love marriages. In fact, the attraction that brings the majority of couples together is, primarily, physical. Beautiful sex expression and mutual sexual gratification often engender love, even though it was not present in the beginning. But a couple drawn together through physical attraction only must find mental satisfaction in each other or this development of lasting love is not likely to occur. Only by the proper balance of all elements can full joy in life and love be attained.

While there are occasional affinities who know instinctively

and immediately that they are "meant for each other," it is usual for love to develop gradually. Acquaintance passes into friendship and friendship ripens into sympathetic understanding which naturally expands into love. Ordinarily, therefore, one has plenty of time and opportunity to prevent the development of love if one so desires. Various circumstances and influences change the course of friendship and prevent its development into love, or check the course of love and prevent its culmination in marriage. Then can anyone doubt that usually there is sufficient opportunity to bring reason into conference with emotion?

In contemplating a change so important as marriage, it is one's personal, social and racial duty to advance step by step rather than by a single leap. In selecting a mate let attraction be tempered with reason. But reason may be employed not alone to guide one in this important matter. It may also help one to remold a prospective mate's character and disposition, and so develop a satisfactory companion. On the eve of marriage men and women wish to appear as pleasing and as agreeable as possible to the prospective mate, and before marriage they may make radical changes in their natural desires and habits in order to do so. But if before marriage one is not willing and eager to adjust oneself to the other's reasonable wishes it is futile to expect such adjustment afterward. Therefore it should be observed that if any modifications are made, under protest, before marriage, the one making them is most likely to revert to old habits as soon as the novelty of marriage wears off.

One extremely important point concerns insignificant reasons for failure to accept a certain person as a mate. Often religion stands in the way. Whether or not it should be taken into consideration depends on circumstances. Religion, as such, has nothing to do with one's physical and mental fitness for marriage, unless one is a fanatic. Among Protestants, Catholics, atheists, agnostics, Hebrews, Mormons, Quakers, pantheists, theosophists, spiritualists, or any other class of religious thought, may be found satisfactory physical, mental and spiritual mates for those holding different opinions. But religious affiliations are commonly associated with social cleavages and differences in manners and customs, and there-

Religious
Affiliations

fore differences in such affiliations may bring to marriage an element of discord which it may be difficult or impossible to overcome.

Family prejudices constitute another, often unimportant reason for failure to accept an otherwise eligible person as a marriage partner. Such a condition calls for keen judgment. No suggestions applicable to specific cases can be given. If the possible mate is opposed by one's family because of religion or financial status or for some other reason no more logical, then the attitude of the person directly concerned should receive more consideration than the objections of the family. Instinct and emotion, tempered with reason, are safer guides to a biologically successful marriage than reason alone. Under these favorable auspices sexual harmony will promote the outlook for success in a marriage.

Sex Diseases
—Virility

The conditions that make one unfit for marriage are so numerous that they cannot all be mentioned. Wrongly treated or neglected venereal diseases are among the most prominent conditions forbidding marriage. In some of the phases of syphilis the patient should never marry, even though the symptoms disappear under treatment. When gonorrhea has destroyed virility there is no physical basis for marriage, and if this disease has destroyed the reproductive elements, even though sexual desire remains, marriage should be contracted only with a mate who understands the condition and will not be disappointed by lack of children.

Among other conditions that indicate the wisdom of remaining single are: Wasting diseases, especially tuberculosis, except when certain precautions are taken; serious heart disease or destructive organic disease of any organ; various forms of paralysis, unless the result of accident or strain; epilepsy and even minor mental aberrations; pronounced goitre, especially exophthalmic goitre; severe asthma; hardening of the arteries when marked and associated with high blood-pressure; tendency to serious nervous affections; or positive evidence of insanity in more than one generation of a family. The members of that family, though they may all escape the disease, probably should not marry and certainly should not marry in the expectation of having children. It is not advisable to marry one whose mother or father was

insane before the conception of that person or who went insane shortly afterward, unless the insanity was clearly due to some accident or illness, and not to heredity.

An extremely melancholic or self-effacing or egoistic person is likely to become intolerable after a short time. Hysteria usually is said to contraindicate marriage, and yet marriage cures some cases of hysteria. Girls subject to hysteria may have sexual aptitude; yet, usually, they should not marry.

Moral delinquents should be banned in the quest for a mate, except, perhaps, in the occasional case in which rare indiscretions or misdemeanors in girls and women have occurred during, or immediately before or after, the menstrual periods. It is generally admitted that the majority of men have had sexual experience before marriage, and yet, since many marriages are happy and successful, it seems probable that a man's premarital sexual relations will not affect his marriage.

The same cannot be said of marriages in which the woman has had considerable illicit sexual experiences. If she has been "indiscreet" upon a single occasion, she may make a perfect mate; but if she has had sexual relations with several men, especially over a period of years, she is not likely to "settle down" and remain faithful to her husband. The sophisticated husband, on the other hand, is less likely to be disloyal except upon long separation. But there is a wide individual difference in both men and women in this respect, so no hard and fast rule can be laid down.

Indiscretions Before Marriage

If one would learn the real character of a prospective mate, one should observe his or her attitude toward parents and older, helpless or unfortunate people. Those who have no good word to say of their parents and no good act to do for them, those who have "no time" for cripples and old folks, are sure to make intolerable partners in marriage. If a person "makes a fuss" over Mother and perhaps Dad and Aunt, chums with sister or brother, romps with the baby, and will "give his shirt" to help along a fellow being, he will make some mate happy.

In selecting a partner for marriage one should know everything possible of his or her family. Oliver Wendell Holmes' advice that every child should "choose good grand-

Heredity and
Marriage

parents" is a whimsical expression of the desirability of good ancestry. Heredity, of tremendous importance to everyone, cannot be escaped. Each one is the product of two parents and a long line of ancestors, from each of whom he inherits something. Heredity gave you your physical frame, your susceptibility to, or immunity from, disease, your facial characteristics and mannerisms, your nervous energy and weaknesses—everything, in fact, that went to make you what you were at birth before environment or training produced modifications. Comparatively few have any congenital markings; but everyone *must* have hereditary markings.

Productivity, sexual vigor, physical strength, nervous stability, or their opposites, are hereditary and pass from generation to generation, although, since different elements from the same parents go to produce each child, no two children from the same parents will be exactly alike in appearance, vital strength or resistance to disease.

One may know nothing of biology and yet make a marriage that is successful in every way. But not knowing something of it is the reason many marriages fail. While biology concerns the body and its functioning, biological mates are not necessarily physical mates, and mental mates may be neither physical nor biological mates. What then are biological mates?

By this term is meant mates who are best suited to maintain or improve the physical standard of the race through progeny that are equal to, or better than, the average. While biological mating may have eugenic aspects it is not exactly eugenic marriage. The marriage of a very tall man to a very short woman, or of a short man to a very tall woman, is biological, since such marriages tend to an equalization of the qualities of the parents in the children who usually will be neither very tall nor very short. Two thin people or two fat people do not make a biological marriage. The tendency in reproduction will be to produce children that are too thin in the one case and too fat in the other. A fat person should marry a thin or normal person, and a thin person should marry a fat or normal person, in order that the resulting children may be normal, or approximately so. A feminine man should marry a woman bordering on the masculine, and a wholly

feminine woman marry a fully masculine man. Should a feminine man marry a clinging-vine type of woman, their children, as a rule, would be irresolute and unprogressive and would find the hardships of life well-nigh intolerable; while if a masculine man and a masculine woman should marry, their children, even the girls, might be unduly masculine.

Pursuing this idea, those people inclined toward abnormality in one respect, or who have certain characteristics exceptionally predominant, should unite with those having an equally strong tendency in the other direction, or with those harmoniously developed. Even a normal person, however, does not make as good a biological mate for many of these as does one who is inclined toward abnormality in the other direction. As used here, the term "abnormality" does not, of course, refer to a diseased condition, but merely to a marked deviation from the average. The "abnormal" may be normal, in the usual sense of the term. Everyone should so regulate his life that acquired abnormal conditions may disappear and those inherited be held in check. As a safeguard to offspring, and through them to the race, biological marriages should be made whenever possible.

EUGENICS.—The word "eugenics" comes from the Greek *Eugenes*, meaning "well born." *Eugenics* is the science of race improvement; the science that deals with the influences, particularly prenatal, which tend to improve the qualities of man and to develop them to the highest degree. Sir Francis Galton, in 1884, defined the term in his book, *Human Faculty*, as the "study of agencies under social control that may improve or impair the racial qualities of the future generations, either mentally or physically."

Eugenics

The presence of a large number of feeble-minded, insane, blind, deaf and otherwise subnormal children in the population gave rise to a scientific study of these conditions and of ways of eliminating them. To help along this movement Sir Francis established a Chair of Eugenics at the University of London, which chair was held by Karl Pearson. In America a society was established, the purpose of which was to collect data on the subject of race betterment and to give publicity to the facts learned. Nothing of any great practical value has come from the study so far, but gradually, through various

influences, it is hoped that the aim of eugenics will be realized.

The aim and conclusions of eugenics are opposed by those who question the scientific value of its data and who believe that the improvement of the race can be more certainly secured through *euthenics*, which is the science of human improvement through the better nurture of the child. Here, however, consideration will be given only to eugenics, that the reader may not become confused by an overlapping of the two subjects.

When Life
Begins

Inheritance is limited to those factors that are implanted in the individual ovum and the individual sperm cell. Scientifically a new life begins the instant a union between these two parent cells occurs. During the entire period of gestation hereditary influences are at work molding the child physically, determining its mental capacities and peculiarities and, to a considerable extent, setting its moral proclivities. That is, heredity influences the new life through the controlling elements that were in the mother cell and the father cell *when these united*.

The health of the mother may be such that the child does not develop normally, or there may be some affection of the germ that interferes with normal development, but in such cases the influences at work are not hereditary. They are not the result of factors present in the family stock. Except for those factors that are strictly hereditary, the influences which affect the development of the fetus are environmental (euthenic).

The factors of inheritance in the new-born baby come only from the two original cells: the male cell, microscopic in size, and the female cell, barely visible to the normal unaided eye. The two parents, through these tiny cells, contribute equally to inheritance, though there may be dominant factors in one which neutralize corresponding factors in the other, thus giving the child in these respects dominant maternal or paternal characters. But the nine months of growth in the uterus does not necessarily give a preponderance of mother qualities. If it did, the father would contribute comparatively little to inheritance, since he can give nothing after the union of the cells.

Some scientists claim that the parents themselves contribute

practically nothing to their children, that they merely pass on the traits or elements of inheritance that they received from their own parents. This is a debatable question which cannot be settled here, nor is it necessary to devote much time to it.

It seems certain that the health and vitality of the parents may contribute much to the health and vitality of their children and that this contribution may come from either parent. This may be an hereditary or an environmental factor, but regardless of its classification, it is a very important one. For instance, alcoholism weakens the parent cells and may make the offspring inferior, but it does not create inheritable traits any more than exercise creates new muscles. A musical genius would not destroy the musical inheritance of his children by transmitting to them a syphilitic taint; yet he might so utterly wreck their lives that the musical ability would have no chance to develop. Hence the practical results of destruction would be there, though the inheritable quality had not changed.

Hereditry and
Genius

How then can a parent influence the inheritance of his children? The biologist says that this can be done in one way only, and that is through the selection of the mate who is to be the other parent. This being true, the vital importance of making a wise choice of mate is obvious. Therefore, so far as it interests the individual, the science of eugenics is largely concerned with the selection of mates. The man who marries a woman of inferior stock may expect at least some elements of her inferiority to be reproduced in their mutual offspring. It often happens, however, that the inferiority is not discovered until too late to save the children. This usually is due to a failure to study the family history of the prospective mate.

The question of eugenics, as can be seen, is closely related to birth control. Obviously if a superior couple has two children and an inferior couple has ten children the cause of eugenics will not be advanced. The people who are, or who feel that they are superior, are not so much concerned with bringing superior children into the world as they are with reducing the birth rate among the inferior.

Eugenics and
Birth Control

Any discussion of eugenics brings up the question of who are the people of really superior inheritance. The advantages

of wealth mean better opportunities for education and, at least under conditions of city congestion, better opportunities for health. But too many of the world's distinguished men were born in poverty and struggled against great odds for one to believe that poverty means inferiority of inherited ability and health. The average lower achievement of the poorer classes can be explained according to eugenics: by environmental factors, such as lack of healthful surroundings, proper food, education and business opportunities.

Practical eugenics, then, comes down to a choice of three modes of bettering the human race. The first of these scarcely can be considered at present, namely, *elimination*. Sparta destroyed the incompetent, the defective, the crippled and all who could not be of service and benefit to the state. Today the state hangs or electrocutes or otherwise eliminates certain of the undesirables, but it does this only after they have committed crimes.

The second mode is *segregation*. Criminals and those of certain degrees of insanity are confined in special state institutions where they are unable to exert a direct harmful influence upon society. But many defectives, moral and mental, are left to run at large. These find others equally defective whom they marry, and thereby bring still more defectives into the world. To be effective, segregation would have to be practiced on a much broader scale than it is at present.

The third and most feasible method of improvement is *selection*. This mode necessarily presupposes a "fit" race or group. There are comparatively few superlatively fit, but by taking the best available, and securing for each of these a mate of superior health and intellectual qualities, we might in time bring about a racial betterment that now seems but a dream. By sexual selection is meant the choosing, for marriage, of those men and women who possess the best and finest of the masculine and feminine qualities, the most superb health, the most nearly perfect bodies, normal if not unusually superior minds, and stable morals—in other words, those having the transmissible or inheritable qualities of superiority that will, when dominant, raise and uplift the race.

Another means of bettering the race is by preventing procreation by undesirables. As stated above, there are many

defectives outside the classes now eliminated or segregated, who are not fit to be parents. Among these are the mildly defective in mind who are nevertheless able to serve some part in the social scheme, subnormal moral delinquents and the sexually vicious. In such cases *sterilization* is the only means to prevent the production of seriously unfit offspring. Sterilization can be so performed that sexual relations are possible, yet procreation be prevented.

Steriliza-
tion of Un-
desirables

Many undesirables have the pairing instinct. That they may be safer and of more service they should be able to satisfy this instinct through marriage. As they exist in about equal numbers in the two sexes, this granting of sexual rights is easily possible. But sterilization has its drawbacks, the chief being that some persons might be sterilized as unfit who required only proper treatment to become healthy, normal citizens, capable of transmitting desirable qualities to offspring. Nevertheless there are many about whom there can be no doubt. These should be sterilized.

From what has been said of eugenics it is evident that the world is not sufficiently advanced to put such principles into general practice. For generations to come people of all classes and grades of mentality and physical stamina will continue to marry and bring children into the world. Hence it is becoming more and more a function of the State to provide better opportunities for the development of all children. Environment has a tremendous influence. When harmonious and wholesome it enables parents to maintain better health and so give their children a better start. Upon children, during the developing and the formative years, it has an even greater influence, saving for usefulness many who otherwise would have perished.

Influence of
Environ-
ment

The individual, too, can do much for his own health and mental progress. The fact that a fine muscular development is not so much a matter of inheritance as of training is evident from the numerous cases of men and women who have become strong and beautifully formed when spurred by humiliating weakness, underdevelopment and frailty to make a determined effort. They have developed themselves into fine athletes, swimmers, strong men, and desirable parents. Through their efforts toward physical betterment they have produced

a condition that assured proper nourishment of the parent cells of the next generation, and the children born of such parents have a start in vitality that may overcome much in the way of hereditary defects or weaknesses. Some might say that these people could not have become so developed had not latent qualities been received from previous generations. The fact remains, however, that the inheritance was not sufficient in itself to insure such development and that individual efforts were required. No matter how strong the hereditary influence may be toward vigorous bodies, if people do nothing on their own initiative, through the idea that they are so well born that they do not need to make any effort toward obtaining or maintaining health, much that has been gained through inheritance will be lost. Along with a superior start, if a true spirit of physical culture in its broadest sense can be inculcated in the minds of children, each generation should show added improvement.

No one denies the statement that there is better stock in some families than in others, and that, in a general way, like produces like. Certainly the children of fine, strong, happy and intelligent parents have a far greater chance of personal happiness and progress and are more likely to do their share toward uplifting the race than are the children of inferior, sickly, frail and stupid parents. According to Galton, the Greeks of Aristotle's time were as superior to the modern English intellectually as the Caucasian race is superior to the Negro in Africa, these statements applying to the patrician classes.

"If the high Athenian breed had maintained its excellence and had multiplied and spread over large countries, displacing inferior populations, it would assuredly have accomplished results advantageous to human civilization to a degree that transcends our powers of imagination." (In *Hereditary Genius*, by Francis Galton.)

In studying certain family lines Galton came to the conclusion that the son of an eminent man had about five hundred times as much chance of having ability as the son of a man taken from the common ranks. If this is accepted as a fact, it is evident that, if the superior people have few children and the inferior people have many, the race is doomed to deteriorate. Obviously, then, any man or woman who is above

the average in health and intelligence owes it to the human race to select, as the other parent of his or her children, the finest possible type of man or woman, and equally it is the duty of that person to have as many children as can be properly reared.

One of the most serious racial problems of today comes from the fact that birth control is known and practiced by the superior individuals and is not known or practiced by the inferior ones. This problem is equally serious whether the most important influence on the quality of the children comes from inherited traits, from the superior health of the parents or from the advantages of good feeding and intelligent care. In any case racial deterioration will be the result. The problem can be solved only by a reversal of the present situation and the establishment of a condition in which birth control will be practiced by the inferior, as well as by the superior individuals. Yet universal knowledge of birth control will not fully solve the problem. One neutralizing factor will lie in the fact that those whose sexual passions are least under the control of the mind, those with the least intelligence and the least forethought, will be the ones who will most often fail to apply their knowledge and hence will most frequently bring unwanted children into the world.

Unwanted
Children

Birth control cannot be kept from the superior classes. This knowledge is responsible for the small families so prevalent among these classes. Therefore, in order to counteract the effect of such limitation among the superior classes the same knowledge should be made available to the inferior ones. Every woman capable of producing children who will not be a burden and a detriment to society, should have the right to say whether and when she will bear them. It is the wanted, planned-for children who are the best born and the best cared for. The marriage partners who are physically strong and mentally capable are the ones who can think and plan for children—though by no means all do so.

COUSIN MARRIAGES.—Inbreeding is believed to bring about deterioration, through the overemphasis, in the offspring, of undesirable inheritable traits. If this is true one should not marry a near relative. It has been said that, as the result of past intermarriage among limited groups, every-

Inbreeding

one marries at least a thirteenth cousin. This statement, doubtless, is an exaggeration; but even if it is literally true the deteriorating influences, if there are any, of inbreeding probably will not act after the third or fourth generation. Therefore third cousins, and all more distantly related may marry with safety unless there is a distinct family defect, particularly insanity. It is chiefly against first and second cousins that interdiction of marriage has been directed.

**Marriage
of Relatives**

Many marriages between first cousins have been successful from every standpoint, including the production of normal offspring. Cleopatra was the daughter of a brother and sister and a great great granddaughter of Berenice, who was both cousin and sister to her husband, and Cleopatra was an astute woman, and so attractive physically that she brought two of the most prominent men of her time to her feet. When it is known that there is no undesirable trait, particularly a nervous or mental affection (the latter even in slight degree), in the family, there is nothing to fear regarding the children of first cousins. The same might be said of marriages between an aunt and a nephew and between an uncle and a niece of appropriate ages, though these latter marriages are extremely rare and almost universally considered incestuous.

THE SUCCESSFUL MARRIAGE.—No cut-and-dried rule for a successful marriage can be laid down, as there are, perhaps, more forms of marriage behavior than there are marriages. The mating instinct is in every approximately healthy person, and mates are sought in the face of all obstacles. "Why, then, a world of sexually unadjusted: unmarrieds, divorcees, oft-marrieds, courtesans, prostitutes, homosexuals, asexuals, dog-lovers, snake-charmers, cadets, loveless marriages, childless marriages? Endless kinds." (George Dorsey, *Why We Behave Like Human Beings*.)

Later Dorsey calls attention to an important fact that seems to have been somewhat overlooked, especially by those who want to see the darker side; namely, that the world hears much of the unsuccessful marriages, but not, as a rule, of those that are agreeable and happy. Many unhappy marriages are not recorded, for individual nature or circumstances prevent some people from airing their marital difficulties and seeking release from a bad bargain. Often those who at first find

marriage irksome and would be glad to dissolve it, learn in time to adjust themselves and so "live happily ever after."

In spite of these temporarily mismated couples and of the many who are permanently mismated but who keep their troubles to themselves, many marriages have been and are happy from the honeymoon to the end of life. Even when the partners are known as fully as it is possible to know them, it is impossible to say with absolute certainty that a marriage will be successful. What then are the conditions for a happy marriage? The answer is: There are none predictable, since they are never the same in any two unions.

Among the requirements already given for a successful marriage emphasis was laid upon that physical attraction which lasts and leads to physical harmony, hand in hand with mental agreement. Each person entering marriage, unless for some ulterior motive, wants, and expects to find, a partner with whom to share life; who will complement his or her nature; who will realize the importance of a balancing interchange in all that is common to the lives of the two; who will give and deserve honor and respect; who is virtuous, faithful, loyal, truthful, constant, scrupulous, uncorrupt, high-spirited, devoted and intelligent. These qualities and their interpretation will vary in degree in different people.

The Successful Marriage

Many men have found true worth in women who had been guilty of certain infractions of the moral code, while others have been disappointed in women who have been wholly virtuous. Some girls and women believe that men who, to a certain limited extent, have been unchaste before marriage make the better husbands physically. Also some men, who regard the honor of being "the first" with a woman as of less significance than assured sexual adaptation, hold that a woman who has yielded her virginity to another, yet who has not been loosely licentious, makes a better physical mate than a virgin.

Previous virtue or breach of morals reacts differently upon different people, regardless of the fact that previous virtue may be and is little more assurance of devotion and fidelity after marriage than premarital looseness is an assurance of continued moral slackness.

Since there are so many men and so many girls and women who have had one or more sexual experiences out of marriage,

this subject necessarily enters into any adequate discussion of the conditions essential to happy marriage. Each one must answer the question for himself or herself; but those who happen to discover that a loving and faithful mate has in the past been "indiscreet" should remember that this knowledge of the facts makes no difference in that person's character; that if love was there before it is still there; that with marriage a new epoch in the lives of both began, and that nothing is gained by nursing an insane jealousy and breaking up a union that so far had been happy. If the situation is looked at properly there may be in every respect a closer harmony after the facts are known than there was before; certainly there need be no less harmony. While premarital virtue is commendable and desirable, it is postmarital fidelity that really matters.

**Fidelity in
Marriage**

Fidelity is necessary to happiness in marriage because sexual relations are so intimate that it is impossible for those who are earnestly in love to share these relations with another without jealousy. Even where polygamy is permitted there are jealousies, though they often are necessarily held in check. But loyalty is as essential to happiness as sexual fidelity. If a marital partner really loves his mate he will be loyal without any promptings. One may profess loyalty and yet be grossly disloyal. A marital partner had better be guilty of sexual infidelity though remaining loyal, than of disloyalty while remaining sexually faithful. Assuming safety from disease, the one guilty of infidelity does not actually harm the mate, while the one guilty of disloyalty almost certainly does.

**Mental
Harmony**

The happy marriage is not necessarily the one in which there is no disagreement. If people have enough mentality to have opinions of their own, it is to be expected that there will be differences of opinion between husband and wife. Each is entitled to personal views, but need not invariably act in accordance with those views, especially if and when such action will be detrimental to another. If people could only appreciate the fact that everyone, including oneself, is likely to have wrong opinions, there would be less discord. Too many people cannot conceive of their being in error, nor discuss rationally any point or subject with those who do not agree with them. The wife or husband who is irritated by reasonable disagreement cannot be partner to a happy marriage.

While mental harmony is necessary, it is not essential that the partners know all the details of each other's thoughts and mental pursuits.

There is too often a death of romance and sentiment in married life. For this there are many reasons, but disillusionment usually underlies it. Too often people do nothing to hold the interest of their partners in themselves. They take no note of their personal appearance, do not guard their speech, stagnate mentally, and in countless other ways become unattractive. Romance cannot live where there is no illusion or beauty, nor imagination; no idealism, dreaming, inspiration, originality or ardor. The marriage in which all sentiment and all romance is dead cannot be happy.

Formerly women, accustomed to being considered the personal property of their husbands, took the ownership attitude as a matter of course, and were meek and docile and submis-



PHOTOGRAPH INTERNATIONAL NEWSREEL

This Arabian mother, photographed in Jerusalem, conforms to the customs of the harem in hiding her lower face with a veil, but otherwise she is a strong, free creature well able to care for her children. Her feet are particularly well developed, and she can walk for miles over the desert sand, barefoot, with long free swinging strides. Apart from the veil, her costume differs very little from that of her tribe's men-folk, with their loose flapping robes.

Possession
in Marriage

sive. To outward appearances, such marriages often seemed happy. But modern women refuse to be considered chattels; yet many husbands still endeavor to direct every activity of their wives, require an account of every hour and every moment of time and every trifling amount spent; demand that their wives stay at home and be at their beck and call, with never a word of appreciation or thanks and often with unjust criticism. Such a union is a disgrace to the institution of marriage.

The opposite type of union, in which the wife is perpetually nagging, finding fault, never pleased, never satisfied, is no better. Marriage is not an ownership affair nor an association for the display of a mean disposition and unruly temperament. No marriage can be successful unless both husband and wife realize that the association is one of strict equality.

If there are no interests outside the home a marriage probably will be successful only for a comparatively short time. Few people can completely fill the life of any other individual. Even when the most perfectly mated people have only each other to see and converse with, each eventually may irritate the other.

Lack of
Harmony
in Marriage

No marriage is likely to thrive unless it establishes a unit in the social system. This unit must be self-governing, but it is disastrous if one partner assumes sovereign command; as a partnership the two directors must be free if they are to be happy and if the union is to prosper. It may collapse through mismanagement, but when it does it may be certain that outside rule would not have helped. Neither "in-laws" nor friends can successfully run someone's else marriage or home.

As said earlier, many factors influence the permanence or transiency, success or failure of a marriage. These factors are not the same in all marriages; though certain of them are essential for success, others are as inevitably disastrous. With intelligence and an earnest desire to make a union permanent two partners usually will be able to rise above discouraging influences and will be brought closer together in mind and spirit by the struggle.

THE AGE TO MARRY.—Marriages are more likely to be enduring if the ages of the bride and groom are not too great

or if there is not a marked difference between their ages.

So many years are required for education and the attainment of a position that affords a good salary that often marriage must, or seemingly must, be delayed. Parents and friends usually advise girls against marriage except with a man who is already sufficiently established to provide them with the luxuries of life.

It is perfectly proper for a girl to make herself attractive to men, especially to the one she feels would be a worthy father to her children—and *she should have this in mind!* She may not definitely and openly choose her husband, though there is no legitimate reason why she should not propose marriage. But since it is not the custom girls shrink from it and men would probably feel that they had been cheated out of their inalienable right to make the choice if women decided to take the initiative. However, a clever woman can make the man feel that he is doing the searching and the selecting. If she can give him this impression while the contrary is true she is surely above reproach. If she makes the selection it may be necessary for her to use some subtlety and cunning to attract his attention. There is no intention here to endorse or encourage such seduction, but only the desire to suggest that a girl has a right to exercise her womanly prerogative of securing the best possible physical, mental and spiritual mate.

If puberty is established at fifteen, the safest age for marriage would be twenty-two for women and twenty-five for men, which means that there are about eight years in which marriage may take place with the greatest physical advantages. The physical and mental vigor of the partners has reached its height during these years and the parental instinct is strongest. Toward the age of thirty for women and before thirty-five for men the desire for companionship and the comforts of home becomes predominant, overshadowing the parental instinct.

This does not mean that marriage after these years may not be happy and successful. A woman should be still in the prime of her physical attractiveness and sexual activity between the ages of thirty and forty, and mentally she should be more companionable than at an earlier age; also, since her child-bearing period continues well beyond this time, she

should have a strong desire for children and, if her parental instinct has not been dwarfed by suppression, she should make a wholesome, healthy, affectionate and wise mother. But while this should be the normal and often is found, in most instances every physical factor concerned with motherhood will be at its height before the age of thirty, and if the first childbirth occurs before thirty it usually will be easier than it will be after that age. The man who waits until thirty-five or over before marrying has often lost his keen desire for offspring; also his sexual and physical vigor may have declined.

Idle Wives A union is most likely to be happy when the couple, though young, are fully mature. When mature each sees in the other traits other than the physical and, without conscious attempt to do so, each gradually acquires any desirable traits possessed by the other. Each is still sufficiently plastic to be molded into completely harmonious complements, and their aims, ideals, ideas, hopes and ambitions become more nearly identical. As they grow and develop side by side through the years the bond between them becomes so strong that only death can break it.

Often these early marriages make it necessary for the wife to work and augment the family income. There certainly is no disgrace in this. The home of the average young married couple is small and except for social pleasures and obligations there is little to occupy the wife's time. This is especially the case in cities, particularly when the home is an apartment and the husband does not return for lunch. The wife may have from six to ten or more hours on her hands and the home may require but an hour or two of attention daily. It is said "the devil finds work for idle hands to do," and the truth of the adage has been proved over and over again in the case of idle wives.

Unfortunately many men still hold to the primordial view of wife possession, of their own innate superiority and woman's inferiority—a view which places the wife unalterably in the home and demands of her as her bounden duty reverence and faithfulness to her marriage vows, regardless of what the man gives in return. Modern man is gradually abandoning this point of view because modern woman is forcing him to do so.

From what has been said, it must not be assumed that



PHOTOGRAPH UNDERWOOD & UNDERWOOD

PLATE 45. In the center of this photograph of principal participants in a wedding typical of Europe and America, appear the bride and groom. They are flanked by the maid of honor, the bridesmaids and the flower girls, also by the best man and ushers.

Encyclopedia of Health: Volume II

early marriage gives a positive assurance of happiness, though it increases the probability of happiness. In marriage at later ages there is primarily a desire for companionship. If the age is such that children cannot be expected, the marriage may be happy. If the man is many years older than the wife there is usually no overwhelming urge for parenthood, such unions being largely for companionship. As a rule there should not be a greater difference between the ages of husband and wife than seven years. If the man has retained his full physical and sexual vigor he may remain a complete mate for his younger wife as long as her sexual impulse is active. If he has lost much of his vigor or if the wife retains her sexual health and ardor longer than the husband, the most perfect adaptation otherwise may fail to bring happiness. Much then would depend upon the woman's intelligence and understanding and the degree to which she was able to sublimate sex.

There must be unity of aims and purposes, mental equality, spiritual concord, physical balance and sexual harmony between the partners if there is to be a true marriage. If these conditions exist the marriage may and should be happy and successful; and if healthy and wanted offspring result from the union it should be triumphant, whether it began early or late and whether there is approximate equality or considerable disparity in the ages. Success in marriage depends almost wholly upon the individuals directly concerned. Their mutual understanding and *desire* to understand, their congeniality, capacity for adjustment and inherent qualities are vastly more important to success than the matter of equality of age or other physical factors.

THE HONEYMOON.—When the partners have chosen each other and have finally married there comes the honeymoon, a brief period of really “getting acquainted,” during which the success or failure of the union may be determined. The honeymoon has no definite limit of duration, but usually it is considered to include the first month or so after marriage, and often nowadays the term is used to designate the holiday spent by the newlyweds before settling down. According to Webster's *Unabridged Dictionary*, it originally had reference to the phases of the moon, “which is no sooner full than it begins to wane.” Unhappily, this is appropriate to many

The Honey-
moon

honeymoons, in which the couple start out full of love only to find that love shortly waning.

Either the bride or the groom may be responsible for difficulties during the honeymoon. In any event they probably will arise through ignorance. It is just such ignorance that this volume is designed to correct.

Neither the word "command" nor the word "obey" should be in the vocabulary of the married, especially the newly married. The man has not bought and bargained for his bride; he has, instead, entered a partnership. Neither one, then, is possessor or ruler of the other. The husband often expects his bride to resign her individuality, to become absorbed in his personality, to have no rights not specially granted her by him.

No marriage will be successful if this attitude of the husband is acquiesced in by the bride, unless she is so unusually clever that she can have her own way while making the dictatorial husband believe that his word is law. One does not need to open hostilities at once, nor to be belligerent; but the bride whose husband gives evidence of entertaining such ideas must, for her own sake, for his sake and for the success of the marriage, make him understand that she expects to be herself. If there are qualities in her make-up which would prevent his invariably following her inclinations without jeopardizing the best interests of the union, then her love should help to hold these in check without any dictation by the husband.

One situation in which too much independence by the wife may create permanent misunderstanding concerns that delicate, precarious final physical surrender to the mate of her choice. With few exceptions, the husband desires and expects the bride to receive him eagerly on the wedding night and most brides expect to surrender their virginity at this time, even though they may be ignorant of its possible meaning to themselves. But some women go to the nuptial couch with the deliberate intention of delaying the final surrender as long as possible.

Often the bride has only the vaguest impression of what the marriage relations are, or perhaps she has heard that they are painful or unpleasant, or that they mean nothing to the woman. She may even consider them repulsive. If she holds any attitude other than that of full readiness to give and to

receive, it is the husband's duty to attempt to bring about the latter attitude. Timidity and fear must be replaced by confidence. The bride should not be hurried but should be permitted to become accustomed to the strangeness of her surroundings. A few nights of quiet familiarizing, discipline and gentle persuasion, with oral explanations and assurances, may be necessary for her preparation.

The bride and the groom should know before marriage that a normal sex life is essential to a normal and successful marriage. If it is not known before, after marriage may not be too late; even if the knowledge comes after years of married life in which there has not been a normal sex life, normality may still be developed. If either bride or groom does not appreciate the need of a normal sex life, while the other does, then that one should try to make the other understand the need. If the



Sex Natures
in Men and
Women

PHOTOGRAPH INTERNATIONAL NEWSREEL

This woman of Nepal, India, works side by side with men at hard outdoor labor, while bearing and looking after numerous children. She has found a way of providing her baby with crib and play-pen while keeping her hands free for other uses.

wife is the informed one and the husband is ignorant it is her duty to teach him. If she presents the knowledge tactfully the husband will "fall in line." If neither knows of this need their love and desire to please and to live harmoniously should lead them to seek advice, perhaps to secure and read together some of the readily procurable books in which is presented the necessary knowledge in understandable form. This volume aims to present such knowledge.

**Misunder-
stood Facts**

It should be understood that the first efforts at physical mating may be difficult, even if the bride eagerly responds. If she is a virgin and has retained the hymen there may be so much pain as to rob the act of all satisfaction. Even if there is no interference from the hymen, there may be no enjoyment for her because of the action of the husband. While a man should always be considerate at this time the greatest possible caution is necessary in the case of a virgin bride. The rupture of the hymen produces hemorrhage, and is generally accepted as a proof of the woman's virginity. The absence of the hymen, however, proves nothing. Ignorance of this fact on the part of both men and women has been the cause of many false accusations and much marital unhappiness.

One of the most common causes of failure of the bride to respond at first is the husband's roughness and lack of consideration. But even with the utmost regard for the woman in these matters many a husband fails through ignorance. Taking it for granted that his wife's nature is similar to his own, he gives her no time for a physiological preparation. The fact is that, as a rule, women require much more time than men to become so aroused sexually that coition can be normal and complete. If one considers the difference between the male and the female, throughout a large part of the animal kingdom as well as in the human family, it will be understood that the male must be more quickly aroused than the female.

The average new husband, however, being thoughtless, selfish and ignorant, is impetuous and thereby defeats his desire to raise the woman to his own level of excitation. There should be a little of the feminine in every man and it should be in evidence at least during this first intimate relation, above all other occasions.

Only the masochist receives pleasure from a violently aggressive sexual relation. The average woman must be carried through the various phases of the sexual act with a considerable measure of gentleness. She is repulsed and offended and often physically tortured by aggressiveness. This is a frequent origin of what is wrongly considered frigidity or sex coldness in the woman. The aggression of the husband has an effect upon himself that contributes to the wife's inability to enter into the relations with pleasure. His vigorous action is almost certain to bring him quickly to the climax, and this hastiness, if combined with brutality, prevents the possibility of response from the wife.

It sometimes happens that impatience on the part of one of the couple, or a derogatory or sarcastic remark creates a psychological condition that hinders or prevents normal sexual desire. Often a man develops a psychological impotence from such a cause. Sympathetic understanding and the absence of discourteous, disparaging, churlish remarks or actions are necessary if there is to be harmony in the new relation.

In considering so important a subject as this the question of lingerie may seem irrelevant, but it may be of real importance to the harmony of the marriage. Coarseness in conduct or appearance may prove a bar to entering upon congenial relationship. Underwear of coarse material, unattractive and misfitting, may repel the wife or husband. Indeed, these more intimate garments are often of much greater importance throughout married life than fine outer ones. Lack of cleanliness in person or clothing may prove a great obstacle.

Other details may have a good or a bad effect, but disregard of the esthetic soon undermines the love of the marital partners. Therefore the wedded pair should take pains not to allow themselves to become associated in each other's mind with any sordid appearances.

Refinements
in Hygiene

Offensive bodily odors should not be tolerated; otherwise the chances of a happy honeymoon will be greatly reduced. Even a marriage that has continued for years may be disrupted by this unpleasant condition. There is a natural pleasant feminine odor that is alluring; but the strong acid odor, frequently resulting from a highly toxic condition or from insufficient and improper bathing, is anything but pleas-

ing. Whether dental treatment or dieting is necessary to correct mouth odor and a more strict hygiene for a body odor, both of these certainly should be brought completely under control and should be kept so. If the offending partner seems unaware of this condition the other should tactfully and courteously mention it.

The natural discharges of the body are not agreeable and discussion of them is not pleasant, but there is an unnatural discharge that is peculiar to women which should be mentioned. Leucorrhea, or "whites," may be caused by mild catarrhal inflammation of the uterus, or sexual excitement without gratification. In such cases it may disappear soon after marriage. When it exists it may be well for the married woman to keep its presence a secret, at the same time instituting proper treatment to restore a normal condition.

DISHARMONIES IN MARRIAGE.—Primitive emotions may be modified by culture, higher standards and new ideas of morality.

Sex love is the basis of the union of a man and a woman. This does not mean that sex love is merely a physical attraction; it is as much psychic as physical. It necessarily involves possession of, and loyalty to each partner by the other. The union cannot be temporary if the children are to be provided for satisfactorily. Jealousy thus becomes an essential emotion and part of sex love.

Jealousy and
Inferiority

But there are other forms of jealousy less justifiable that create greater bitterness. If there is the knowledge that the sexual relations are not mutually pleasing, there is unconscious or conscious feeling of deficiency. Not knowing that it is the duty of the husband to awaken and then to pacify their erotic impulses, many women reproach themselves, thinking they are at fault. Occasionally one is; but in the majority of instances the man is to blame. In either case, however, the woman usually becomes fearful that the husband will seek a more agreeable mate, even if only temporarily and occasionally.

JEALOUSY IN MARRIAGE.—Jealousy is one of man's primitive emotions that still survives. Havelock Ellis has said it is "an emotion which is at its maximum among animals, among savages, among children, in the senile, in the degenerate and

very especially in chronic alcoholics." Shakespeare's Othello was a barbarian; Tolstoy's Poldnischeff, in his *Kreutzer Sonata*, was a lunatic—two extreme personifications of jealousy. Being a primitive emotion, it is not likely it will ever be completely eradicated.

This emotion has its normal and its abnormal aspects. Thus one may be jealous of one's honor and good name. In this application jealousy means merely vigilance and careful watching. It is normal and commendable.

But it is not this phase of jealousy that is to be considered here. For the present, attention is directed to that so-called abnormal phase relating to sexual love.

Jealousy of this sort has been a tremendous force in developing human character. Thus if a woman is mildly jealous her husband or lover is inspired to be true to what he feels is her ideal of what husband or lover should be. If wife or sweetheart notices a tempered jealousy in her husband or lover she is the more eager to live up to such idealization of her. Thus a reasonable jealousy makes for higher morality, greater harmony and home security.

Jealousy in
Marriage

It has been said that the person, man or woman, who truly loves cannot be totally devoid of jealousy. There may be no real occasion for the emotion to be displayed, but upon some over-attention to the loved one by a person of the opposite sex there will come a concern for the latter's reputation even when there is not even a transient thought of infidelity. Thus the jealous one and the one calling forth the jealousy tend to be brought closer together. In this respect, then, and to this tempered degree, jealousy is an important influence in molding character and cementing love.

But valuable and commendable as this kind of jealousy may be, there is jealousy from causes other than love that is not commendable. The emotions most commonly underlying jealousy are vanity, fear, anger, envy and pain. There may be fear of losing the object of one's love, the provider of necessary comforts or the medium of sexual pleasure. Wounded vanity makes one jealous when there is, or is suspected to be, another person who gives greater enjoyment to the one loved. Anger arising from loss of one's property, as the partner may be considered to be, causes jealousy, which may

amount to rage, even when there is no remnant of love left. But the cause of perhaps the keenest sense of jealousy and the greatest agony is pain arising from the knowledge that a truly loved one does not reciprocate that love, especially when the affections of the beloved are engaged by another.

Sometimes a married person gives to one of the opposite sex some part of his or her time, some encouraging or cheerful word, some help, that is not given to the lawful partner. At such times the lawful partner, even if sure of not permanently losing the mate, and even though the latter is not deeply loved, may through envy develop an intense jealousy.

Jealousy and
Infidelity

The husband may become jealous for a similar reason. He may have become impotent, having lost either his desire or his power. *He is not so much inclined to jealousy when his desire has died; but when it remains, after his ability is gone, his jealousy may be great.* The sexually weak man is capable of vastly greater jealousy than the vigorously potent man. Being constantly fearful that another man has displaced or will displace him with the object of his love or his possession, and conscious of the fact that he cannot resume his place, his jealousy is boundless.

Many men, however, have potency but have never developed the art of love. Cognizant of their insufficiency, especially when they know their wives are intensely sexual, they become jealous of every man who approaches and are likely to accuse their wives unjustly of infidelity.

If he has not already done so, every jealous husband should learn the art of love and make an honest and earnest effort completely to satisfy his wife. When he discovers that he has the necessary mastery over himself and that he can control his wife's erotic impulses he will not have occasion to be jealous on this account.

But it is not always toward sexual rivals that jealousy is expressed. Some people do not want their married partners to have friends if it means any time away from themselves. Sometimes such persons are jealous of some or all of the "in-laws." Some parents cannot wholly yield their daughter, or perhaps their son, to another, and so become meddlesome; they may expect as much time devoted to them as to the marriage partner. In this case there might be justifiable

jealousy, but there would not be if the married people were truly in love, if they were harmoniously mated and if they were mature enough to have it clearly understood by "in-laws" and everyone else that they are a separate unit thoroughly capable of conducting their own affairs.

Some women whose husbands give much time and affection to their children become jealous of the children and some men under similar circumstances also become jealous. Many a man has had to give up his men friends because of his wife's jealousy; and occasionally a woman has dropped her girl friends for the same reason. Often a man is handicapped in his work because his wife is jealous of the time he devotes to it. She is jealous of his success, fearing he will grow further and further away from her. Some women are so intensely jealous of their husbands' success and attractiveness that they demand so much of the husband's energy as to prevent such success and attractiveness to others. The jealous husband may be equally childish in his jealousy and actually prevent his wife from attaining the standing she merits.

Often jealousy drives the partner away. A man or a woman may have a friend with whom he or she is accused of infidelity and may thereby be driven to that which would not otherwise have taken place. Occasionally the first thought of infidelity is given by a jealous and suspicious partner. In this manner jealousy often defeats its own end.

If there is some basis for complaining about the attitude a partner takes to members of the opposite sex, then fair-minded, dispassionate discussion is in order. If such a heart-to-heart talk fails to bring things back to normal then the injured partner must consider either overlooking the transgression or separating. The former is the better plan if deep love for the partner still exists; if not, the latter is the better course.

In the majority of cases there is a cure for jealousy. It is best to know whether or not there is real cause. If there is none, of course, it should not be difficult to oust the emotion. If there is adequate cause the procedure will depend upon the temperament of the jealous one and also upon the cause. But liberality and tolerance will be helpful in any case; they will at least ease the sting.

Remedies for
Jealousy

Causes of
Divorce

DIVORCE AND REMARRIAGE.—Marriage presupposes a mutual love and is supposed to be or to lead to a permanent synthesis of two lives into one. But too often physical attraction and infatuation rather than love lead to marriage, and there are many conditions and influences which prevent the perfect blending of the two lives. Often there are conditions that dissolve a union after it had become, apparently, a fusion, even though there may be no physical cleavage or separation. However, when such apparent unions are disrupted it will usually be found that they were undermined by a slowly corroding incompatibility that had prevented perfect understanding. Many couples, absolutely divorced mentally and spiritually, remain physically man and wife until death separates them. But, because of incompatibility or gross infidelity of one or the other, or differences resulting from either of these, an increasing number come to the point where it becomes necessary to separate openly as they have already separated in fact.

Judges who preside over divorce trials agree in asserting that in certain localities there has been an increase to the extent of 75 per cent. in divorces in the past ten years. They also state that 80 per cent. of all these divorce actions are brought by the wives. Knowing human nature, woman's love nature and sexual needs, man's polygamous proclivities and precipitous conduct during the marital relations, it is natural to conclude that the majority of divorces are the result of man's ignorance of the art of love.

But, while the women may bring divorce action in the majority of cases, and though man's ignorance of the sex life of woman may underlie the majority of these, the women themselves are not blameless. While the proportion of married women belonging to the following four groups cannot be positively determined, it may be stated approximately as the writer's honest belief that there are as follows: Five per cent. of women so constituted, physiologically, emotionally and otherwise, that they are always able to respond wholly to their husbands; about 50 per cent. with special individual effort can either hasten or retard their orgasm; about 30 per cent. cannot bring about the orgasm by any effort of their own, and as their husbands do not govern themselves in such

a way as to assist they are left in a state of nervous tension with a feeling of unsatisfaction throughout their whole beings; and 15 per cent. fail to develop sexual passion, obtain no pleasure or value from the act and cannot understand what pleasure there can be in it for anyone. Thus almost one-half of all married women must be living uncongenial and unhealthy lives. Even though there were a higher percentage of unions in which there was greater or perfect harmony, still the surprising thing is not the frequency of divorce, but rather that it is not more frequent.

It is claimed by many that one of the most striking characteristics of the younger generation is the complete absence of any sense of responsibility and the importance they attach to their own personal feelings. As a result, the influences that formerly made marriage a tremendously serious step and a solemn and permanent state do not exist today; marriage is entered into as a lark, an opportunity for sexual expression, a chance to escape parental authority.



Harmony in Marriage

PHOTOGRAPH INTERNATIONAL NEWSREEL

Primitive mothers are bond-servants to their children even more than civilized mothers. Here a hard-working Peruvian mother of Oroya tries to combine her preparations for spinning with the job of carrying about a big child who should be running by her side on his own two feet.

Trial marriages are entered into even more lightly and trial separations easily follow. Divorce is crowded by quick re-marriage and the children, if any, have little more than legal guardians for parents.

Within the past one hundred and fifty years there has been a tremendous change in, and attitude toward marriage, the value of which as an institution has declined considerably. This is shown by the fact that today fewer people marry and especially by the large proportion of marriages that end in separation and divorce. Approximately one marriage in seven terminates in legal separation.

Society's
Attitude
Toward
Divorce

Divorce formerly was considered an unqualified evil; many people still so consider it. On the whole, however, it may be said that nowadays there is practically nothing socially scandalous attaching to divorce. But many people still hesitate to resort to it, for their lives have become so interwoven that they dread the wrench of separation. Many things have been experienced in common and deep-rooted within them is the desire to retain what beauty they can of previous mutual joys; children have to be considered and conscientious parents endure much for their sake. Often, too, there is the hope, however faint it may be, that there will be an adjustment, that perhaps some "miracle" will take place and some of the old-time happiness be recovered. When reason is allowed to operate and a little time is taken for things to "work out," this often happens.

Laws for the control of divorce probably will always be required but it is certain that those now in effect need modification. In some states the only condition upon which divorce will be granted is proved infidelity; but numerous conditions besides infidelity may make the marital union a sham and its continuation hypocritical and cruel. In most states divorce is comparatively easy to obtain, but it should be still easier. Marriage is only a man-made institution. Human frailties, human cruelties, human ignorance should be taken into consideration when two people admit their union has failed to prove a blessing to themselves or to society. Obstacles to separation and divorce cannot repair a ruptured union. Something more than statutes is necessary to bring about that mutuality of interests and that harmony necessary to make

a married couple valuable to the state. Education and an underlying compatibility are required.

The romantic courtship, the development of an intense affection termed "love," and a desire to share everything in life with each other, the legitimatization of the union, with its public acknowledgment and final consummation, these should engender an irresistible desire for perpetuation of the union and an indestructible welding of the two lives into one. In the majority of instances this happy perpetuity of the married state is looked forward to during the betrothal period and at least until marriage. At this time, or shortly after, there too often appears, slowly or suddenly, a doubt as to the wisdom of the union and as to the possibility of its continuation. Many marriages in which such doubts develop eventually become normal and wholly harmonious. Many factors may be employed to effect this fortunate adjustment, but in too many cases the partners cannot come to an agreement.

Often one of the partners does not desire separation or divorce. This is recognized by the law which requires that the defendant partner be notified of impending divorce proceedings in order that such a one may have an opportunity to attempt an amicable settlement of the differences. Often it turns out that the one to whom the divorce was granted did not want it—after it was obtained.

Sometimes there is a quick re-marriage of the divorced partners, and sometimes this occurs a long time after the divorce, when the two have had an opportunity to analyze their differences and to discover ways of overcoming them. But sometimes, even when there is a great desire of each partner to reunite, there stands in the way an unyielding pride and an unforgiving attitude toward many harsh accusations that may have been made in the heat of anger. Too few married people today recognize in marriage the greatest possible disciplinary and character-building force. But even a short period of married life may have so modified one's character that after separation and divorce it is discovered that no other state than marriage and no other partner than the previous one will again satisfy. Hence a voluntary separation is far better than a hasty divorce, for it will bring an assurance either that divorce is necessary or that it is not desired.

Remarriage

Yet it must be admitted that divorce is to be preferred to a bond that only stifles, to the awful drama of a continuously unhappy marriage. At the altar, just a start toward unification of the two has been made. There is true marriage only after the two have surmounted obstacles and have eventually merged their individualities into a common existence. If they fail to do this, they fail to become married in the true and deepest sense, and divorce then is merely an outward expression of what already exists. Whether or not there has been an earnest effort to develop a close and permanent unity matters little, except that those who have endeavored and failed deserve greater sympathy than those who have made no effort. Those who have tried and failed know there can be no unifying of their beings; those who have not tried are unsuited to marriage and would make of any marriage a farce or a tragedy.

Parental
Responsibilities
and
Divorce

When children have resulted from a union and responsibility for them is recognized they naturally become a deterrent to separation and divorce. In such cases it may be best to ignore minor differences. When there is control and surface harmony this is often done without serious detriment to husband, wife or children. If there is constant quarreling the continued association will prove detrimental to everyone. It is particularly unjust to the children.

The children should be the main consideration of the parents. Whatever they may do otherwise, disagreeing, separated or divorced, a couple should work together for the best good of their children. Neither should make statements in the presence of the children that may tend to lessen respect for the other. If divorced, they should, for the sake of the children, as well as their own self respect, so live as to prove that the divorce was used only because it was a necessary remedy for a situation that had become intolerable. There is no reason why a man and a woman, who had lived in the intimacy natural to married life, should be enemies simply because they have separated.

When husband and wife find they are physically and mentally unsuited they should abstain from sexual relations. To continue may result in bringing into the world new unwanted beings who will not have a fair start in life.

Many people hold that, though divorce may at times be unavoidable, re-marriage of either divorced partner should not be permitted. This would put a premium on prostitution as it ignores the needs of normally sexed men. Also it would condemn to lifelong loneliness many of both sexes who might be the finest companions for other members of the opposite sex. Often it is through no fault of either that the couple could not agree physically, mentally or emotionally. Many divorced people re-marry for the license marriage gives, for the pride of possession, or for other unworthy reasons; but there are many others who, from the purest of motives, again marry.

It sometimes happens that a first marriage is fruitless. In such cases should the woman be denied all possibility of satisfying her yearning for offspring in the legitimate way? Should the man whose nature craves the affection of children of his own be denied it because he has divorced, or been divorced by, a childless wife?

Enlighten-
ment and
Marriage

When humanity comes into a better understanding of itself and its needs, there will be universal enlightenment regarding the functions of the body and marriage will become more nearly permanent. But for generations to come it will be necessary to countenance, or even encourage, divorce for those who, without physical or mental detriment, cannot remain together.

Whoever disturbs the harmony of two united souls commits a grave offense; but equally grave is the offense of him who would keep together, by force of law and social sanctions, those who can never be united. The idea of marriage must continue. The individual marriage may thrive or it may not; but the idea must go on, until that stage of social development is reached in which every marriage will be harmonious, in which, perhaps, the harmony will have become so assured before marriage that the formal union will be merely a step to indicate to the world that two people are prepared to serve each other and society and the race in the one way that assures the greatest possible service.

Separation or divorce is a remedy of last resort—to be considered only when everything else has failed. It should be remembered that many men and women have become great,

or have rendered great services to the world and to the race, because they have been willing to meet responsibilities. They assumed the attitude that life and certain situations had made certain demands upon them and that it was their duty to build the character essential to meet them. Marriage is often the most exacting situation one has to face and to which one has to adjust oneself. It will always be one of the greatest situations in life and it will not be met successfully until its responsibilities are fully recognized. Unless men and women face these and adjust themselves to them marriage will be a failure.

When two people marry they nearly always believe themselves to be perfect mates. Starting with this favorable attitude toward each other, it seems almost incredible that the majority of marriages should turn out to be dull, commonplace, or actually intolerable. Generally the cause is ignorance, not mismating.

THE NORMAL SEX LIFE.—Human beings are social in nature, so there is necessarily reciprocity in their relations with each other. The degree of friendliness received is in proportion to one's own desire and ability to be friendly. This is illustrated in no other human relation so unmistakably as in marriage. The two who are thus brought together must be moved by the same desire and each must have the ability to gratify the other.

Happiness in
Marriage

Sexual desire being a subtle compound of the physical and the mental, its satisfaction must be as gratifying to the mind as to the body. Through the evolution of the social life this sex craving has become discriminating and, at least ideally, sexual love is reserved for one individual. One of the greatest influences for the development of the best and highest human qualities is the association of a normally sexed man and a normally sexed woman. Other desires are fewer and less urgent when there is the contentment that results from such intimate association.

A normal sex life for husband and wife means complete mutual gratification. Often this desirable unity can be acquired only by training. A great many people tolerate incomplete relations. Most men seem to be unaware that the act is not perfect unless there is completion for the woman.



PHOTOGRAPH EWING GALLOWAY

PLATE 47. A marriage ceremony in Peru, in which the chief of the tribe breaks a vessel of pottery on the rock at his feet.

Encyclopedia of Health: Volume IV

with physical health and beauty and marry intelligent well-sexed men, they usually change their views and become excellent wives and mothers.

Most of the failures in attaining happiness through love are remediable in youth or early adulthood merely by a full development of health and physique, plus a knowledge of the true functions of sex. There are many errors of mind and body that offer pitfalls by the way; and yet, with a little help and guidance, the true searcher after life's fullest happiness can attain well-sexed health to which all human beings are as much entitled as they are to food and shelter.

IS PARENTHOOD ESSENTIAL IN MARRIAGE?—The vast majority of men and women who marry during the usual procreative age desire to have one or more children. In the heart of every normal person there is an inherent love of children and a longing for a child of his or her own. Yet there are circumstances in which even those most desirous of having children cannot, or feel that they cannot, have them.

The most frequent reason for not desiring children is the fear that they cannot be taken care of properly. If both husband and wife must work to maintain a home, then children would be too great a burden; so to bring them into the world would be almost a crime. But many people do not want children because they feel that they cannot provide them with luxuries. Usually parents desire to give their children a somewhat better chance in life than they themselves had. This is commendable. But parents are inclined to place too much emphasis upon the meagerness of their childhood opportunities and upon material things that matter little.

Children
under Dis-
advantages

If potential parents have the physical health and the mental qualifications that deserve to be perpetuated, they should bring children into the world. Many of the world's strongest characters have been reared in poverty, and in the years to come many more will surmount the obstacles of privation. Many people would so enrich their lives, through association with children of their own, that they would be able to rise above their former level and thus provide their children with the desired favorable conditions. Children give an incentive to struggle for higher things. Without them one's life is not fully rounded and complete and one's best not attained.

Without doubt, children are a care. It is a great responsibility to bring new lives into being. But the majority willingly assume the responsibility. The very care that children require brings out the best in the parents. No mother and father worthy the name would exchange the cares of parenthood for their previous freedom. The thought that one's children are also the children of the loved one makes them the more precious.

Pleasure-seeking women and selfish men often desire to avoid parenthood. They want to "have a good time," or don't want to be hampered, and it may be best for the world that they do not have children. But for themselves these people make a grave mistake. They forego a lifetime of joy and a contented old age for temporary pleasures. There are no "good times" that can compare with those associated with the rearing of one's own children.

Women Who
Fear Mother-
hood

Having seen the effects of pregnancies upon the figures of other women, many women do not want children for fear of losing physical beauty. Some husbands find greater attractiveness in women who have not borne children; but a true husband becomes more closely bound to and more deeply in love with his wife after she has become the mother of his children. In spite of pregnancy the outline of the female body can be preserved in practically all its original beauty if one develops the health habit. Without this even the virgin's body will eventually become unattractive. The most beautiful women include those who have become mothers.

Except in extreme poverty and in case of inherent defects and transmissible deformities and taints, children should contribute to the happiness of marriage. Those who are utterly selfish, coarse or incurably ill-tempered should not have children. Murderers and brutal criminals usually have been reared in an environment of hate and dissension. Some people have natures that would not be softened by children, but many who do not welcome the child that is born to them soon learn to love it and give it as much care as if they had eagerly awaited its arrival.

While the forces that draw a man and a woman together in marriage may have nothing to do with a desire to perpetuate the species, yet, from the biological standpoint, that is

the purpose of marriage. It is to the best interest of both the couple and of society that it should be fulfilled. The love of mother for child is one of the most self-sacrificing and ennobling of all human relationships. The love of father for child may be different, but is deep and elevating. Both parents maintain youth or recover or relive their youth in the youth of their children. Parenthood is not a sacrifice; it is a fulfilment. The childless home is an abnormality.

THE BARREN WOMAN.—Why the barren woman so often Barrenness has a tremendous capacity for mother-love is one of the mysteries and greatest tragedies of life. Some women are born sterile or fail to complete development of the reproductive organs. Such women are often frigid and without strong mother instincts. But a great many women develop sterility and these often yearn intensely for children. However, perhaps not three per cent. of married women are positively sterile. It should not be forgotten that many childless marriages result from the sterility, not of the wife, but of the husband.

Disease of the uterus or its appendages is the usual cause of female sterility. Metritis, a gonorrheal infection, a tubal infection or closure, or some other disease of these structures, will prevent conception. The treatment of these diseases is considered in Volumes VII and VIII.

Many women for the first few years of married life purposely prevent conception. After a period of freedom from responsibility, or when financial conditions are more favorable, many desire children but may find themselves unable to conceive. When this condition is temporary it may be corrected by health improvement, but often it is permanent. These women may adopt babies or young children on whom to lavish their mother-love; yet they still yearn for children of their own. When there is incurable sterility the adoption of one or more children may prove the best remedy for the heartaches of both partners.

INTELLIGENT PARENTHOOD

Section 3

THE BEST TIME FOR A FAMILY.—Earlier in this volume it has been stated that the best time for marriage is in the early twenties for women and near the age of twenty-five for men.

As a rule young married people desire their first child fifteen to twenty months after marriage. This gives them a period of freedom and also brings them parenthood while the romance of their union is still fresh and their parental possibilities are at their highest. Both husband and wife tend to develop the best instincts and character by early marriage and early parenthood. Children born and bred in an atmosphere of affection between parents and for their children have advantages over unwanted children and those born to parents whose love for each other has cooled, or who marry so late in life that other interests have become stronger than the parental instinct. The children have the further advantage of comradeship with their parents.

To sum the matter up and to take into consideration any legitimate reason there may be for postponing this consummation for even a few months, it is best for all concerned that young married people should have children as soon as economic circumstances will permit. Those who marry later should have children without delay if they hope to give their children the best possible physical start in life.

FREQUENCY OF PREGNANCIES.—The best frequency of pregnancies depends upon several factors, including the health and stamina of the mother and the income of the father. It is never advisable, however, for a married couple to have only one child, unless it is absolutely necessary for some physiological reason that they so limit their offspring. The single child is greatly handicapped in its future life, for it does not early learn that there must be give and take. It has heaped upon it love and gifts that should be divided. In consequence it



PHOTOGRAPH PACIFIC & ATLANTIC

There is a lesson of courage and cheerfulness in this mother's expression as she faces the camera with her new-born daughter upon the day of the child's arrival at a New York maternity hospital.

is likely to become selfish and decidedly unfit to meet life as life exists outside the home. This is the *usual* condition; necessarily, as in all other matters, there are exceptions.

The best interval between pregnancies will necessarily depend on the size of the family desired. If there are to be three or four children, they might be spaced three or so years apart; if two, an interval of five years or more might be desirable. But in order that the children may be better playmates and thus escape the handicap under which the single child labors (which handicap often exists for widely separated children also), too great an interval in age should be avoided. If childbirth does not leave the mother weakened she may prefer to have her children rather close together, so that the child-bearing period may be shortened and she may devote all her energy to the rearing of her family.

It is not well, however, for children to be born too close together. Few women can endure childbirth as frequently as every twelve months more than once or twice without suf-

Number
of Children

fering considerable loss of vitality. In the case of the birth of a subsequent child at the end of twelve months, they will be obliged, if they nurse their babies, to wean the prior child from the breast at the age of three or four months. This is a physical handicap to such a child, for there is no diet, no preparation, no modification of cow's or goat's milk, nor any other food that duplicates the normal mother's milk.

Another objection to a too short interval is that the newcomer is likely to be regarded as an intruder by the previous child or children. It is surprising how early this resentment develops. If children are born a year apart one child is not out of infancy before another comes, and the needs of the younger make it almost necessary that the first be pushed into the background of the mother's attention. The first, still a helpless baby, cannot appreciate the circumstances and naturally feels neglected, even though it receive all the care really required.

Intervals between
Pregnancies

Generally speaking, the best interval between pregnancies, for the health of the mother and the best interests of the children, is about two to three years. There should be a period of six to nine months at least for breast-nursing of one baby before the mother is obliged to wean it or give it breast milk that is deficient, as it will be if she is pregnant. Nature usually takes care of this by discontinuing the production of milk, but often the reduction of the flow is slow and the mother may nurse her baby for several weeks on defective milk.

Allowing nine months for nursing one child and another nine months for the development of the new baby, there should be not less than eighteen months between births. As stated, whenever possible the mother should nurse her baby for six to nine months, though in the latter part of this period the breast is used only partly for feeding, as the baby is being weaned.

Pregnancy in the normal woman is a health-builder, because every function of the body is on a higher level and every structure in it is being renewed. But for safety's sake there should be a rest period of three months between the cessation of lactation and the beginning of the next pregnancy, in order that the maximum of energy may be recovered. The absolutely normal woman will not require this additional three months, so the interval between pregnancies may

be correspondingly reduced without injury to her health.

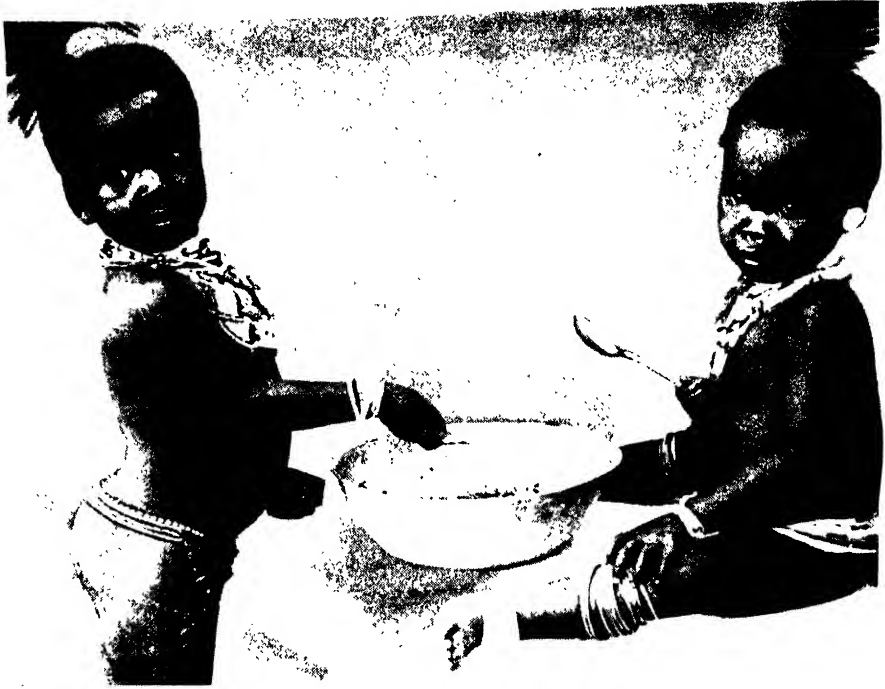
The woman who is physically below par should not become pregnant. Occasionally pregnancy will restore health to the woman much below normal, but to the weak and debilitated it may prove a decided drain. If the woman becomes pregnant in spite of her weakened physical condition she should endeavor to avoid another pregnancy within two or three, preferably three or four years. During this time she should use every possible means to restore her health.

ABORTION.—This method of controlling the number and frequency of childbirths cannot be too strongly condemned. Many women "think nothing" of having an abortion performed, and many do have this operation, time after time. Some, also, take the additional risk of performing the operation upon themselves. Midwives often bring about abortion in their women patients, usually with the scantiest regard for asepsis and antisepsis. The more ignorant the midwife, the more willing she is to produce abortion. Even under the most aseptic conditions and with the most scientific procedures possible, abortion is a dangerous operation.

Abortion
Inexcusable

Yet there are conditions under which it is advisable, such as deformity of the female pelvis to such an extent that normal childbirth is impossible, though sometimes it is better to allow pregnancy to go to full term and then perform a Caesarian section. Abortion is also indicated in the case of certain abdominal or pelvic growths, severe kidney, heart or lung disease or diabetes, pronounced goiter, pernicious anemia, venereal disease, or any other condition which will inevitably and irrevocably injure the child. But when employed solely for the purpose of avoiding an unwanted child it cannot be too strongly condemned. In either case birth control would be better than abortion.

Often the woman who has submitted to abortion eventually desires a child only to find that she can no longer conceive. A single abortion may cause a condition of the uterus and associate organs that prevents conception. There may also result such serious infection or disease as to cause either speedy death or lifelong invalidism. If there is no serious condition which would make pregnancy or childbirth more dangerous than the abortion, or that would be certain to result in a de-



PHOTOGRAPH KEYSTONE VIEW

Primitive tribes observe no special care in the selection of the child's diet. But in many cases the native supply of food, consisting largely of cereals and vegetables, is so good that the child eats what he pleases and comes to little harm. These little African children are dressed for dinner in a typical tropical manner, with a minimum of covering.

formed or deficient child, a pregnancy should continue to normal termination.

Theories of Sex Deter- mination

PREDETERMINATION OF SEX.—A controversy has long raged around the question of predetermination of sex. Some people declare it impious to attempt to regulate that which they feel is the exclusive concern of the Creator. But if birth control is legitimate, so is sex control. Normally Nature balances the sexes evenly, with a slight preponderance of male births (the preponderance of males vanishing in mature years because of occupational mortality and other reasons). However, the sexes are not always well balanced in the same family. A means of controlling sex, therefore, would not only be a benefit in individual cases, but so long as conditions tend to produce a deficiency of males, an increase in the ratio of male births would help to raise the status of women.

With the control of the number and sex of offspring,

procreation would indeed take on an aspect of real spirituality. Parents would be creators of definitely planned beings, balancing their family of boys and girls as good judgment might dictate. Under these conditions men and women would be truly, to paraphrase Browning, "gods though in the germ."

Many methods for controlling sex have been proposed, some absurd, others with some scientific basis. Perhaps one of the most generally known and most successfully applied is the so-called *Thury Method*. On the basis of experiments with breeding animals, devised by the physician whose name it bears, this method maintains that the sex of offspring is regulated by the time at which conception occurs in relation to the menstrual period. Thury contended that if conception occurred shortly after the cessation of the potential mother's menstrual period the resulting child would be a girl; and that the further the date of conception was removed from this period the greater the likelihood of there being a boy, the probability of male birth increasing in exact proportion to the ripeness of the ovum.

Menstrua-
tion and Sex
Determina-
tion

This theory involves what is known as the *cross heredity* of sex. It assumes, what has certainly not been proved, that the ovum is male while the spermatozoon is female. A fully ripened ovum is believed to be more virile than the sperm cell that fertilizes it; hence the offspring will be male. But an ovum at an earlier period of development is weaker than the spermatozoon that fertilizes it, so the resulting offspring is female.

According to the Thury rule, if conception takes place within five days following the menstrual period, the child will be a girl. If it occurs from the sixth to the eighth day after the period the result cannot be foretold. But if conception occurs between the eighth and the twelfth days the child is almost certain to be a boy.

However, Thury's method, at best, does not meet all the requirements. Several other important factors must be reckoned with. Chief among these is the condition of nutrition and the physical functioning.

An idea held by the uninformed is that the mother, by an effort of mental concentration, either at the time of conception or immediately afterward, is capable of influencing the

sex of her child. This may be dismissed from the realm of credibility by pointing out the fact that the number of chromosomes (described below), which most embryologists believe are the biological determinants of sex, cannot be influenced by maternal impressions or mental suggestion. That the ancient Greeks believed implicitly in such a method of predetermining sex and took care to surround their pregnant women with beautiful statues, sexed according to the sex of the child desired, signifies merely that the Greeks knew no more of embryology than do scores of thousands of people today.

Sex Determination by Chromosomes

The *chromosome theory* is based on differences in the arrangement of the chromosomes of the parent cells. These threadlike bodies, visible under the microscope when stained (hence their name), in the nuclei of the ovum and the spermatozoa, split lengthwise when the two unite and pass to opposite poles of a complex, spindle-like structure. Many embryologists contend that after this dividing process is concluded there may remain one or two accessory chromosomes which fail to divide and which are called "sex chromosomes," and that it is the function of these accessory chromosomes to determine the sex.

In the maturing of the ovum and of the spermatozoon the number of chromosomes in the nucleus of each is reduced to just half the number found in the body cells. Neither the ovum nor the spermatozoon can now divide or multiply further without uniting, for both are mature or ripe (said more of the ovum). The spermatozoon has practically no protoplasm, its head being mainly nucleus; the ovum has a relatively large amount of protoplasm (or cytoplasm). When the mature spermatozoon meets, head-on, with the ripe ovum and penetrates the cell wall, conception takes place.

The chromosomes are now thought to determine, to a great extent, the physical characteristics of the new being. They are said to be beaded, and each "bead" is presumed to represent some inheritable characteristic. Naturally, to some extent at least, these chromosomes and their character beads probably are dependent for their inherent vigor and stamina upon the health of the cells, and the health of the latter depends upon that of the parents.

Doubtless through these chromosomes certain weaknesses

and strengths are inherited. The physical form and stature are determined by some element or elements in the fertilized ovum. These, it is thought, may be inherent in the chromosomes. In the fertilized ovum the resident property which predetermines the form and stature of the new being may be designated as a form-building power. While the development of the fertilized ovum continues in the main true to the species, it takes on also the peculiar characteristics of the parents.

If this theory is correct it probably would be impossible to predetermine sex, for it would be necessary to alter the number of chromosomes—evidently an impossibility.

Another theory deals with the effect of *nutrition* upon sex. It is known that bees produce their queen merely by submitting one of the larvae to special feeding which transforms what otherwise would develop into the ordinary, non-egg-laying female worker, into one of the most fecund of insects. Also it is claimed that experiments have proved the possibility of altering insects, frogs and fishes by changes in feeding, the poorly nourished larvae tending to become males and the over-nourished ones females.

Some statistics indicate that wars are followed by a marked increase in the number of male births, the phenomenon having first been observed on a fairly large scale after the siege of Paris in 1871, when a disproportionately large number of boys were born. Again in 1918, after four years of devastating war, the sex ratio of births in France was 776 boys to 667 girls. It has been suggested as an explanation that after a war the less strong and virile men are left to become fathers and their germ-cells are less virile than the female germ-cells.

Furthermore, since the female is less removed from the primitive than the male, and, perhaps, more vital, because Nature designed her for motherhood, her germ-cells suffer less from undernourishment than do those of the male. Therefore, because of the cross heredity of sex, previously alluded to, there is the evident excess of male births following war or famine. A significant exception to this rule was the period following the Russo-Japanese war, when the sex ratio of births in Japan was decidedly in favor of girls. But this was a time of unusual prosperity and a tremendously augmented food supply. However, this is merely an interesting

Wartime
Male and
Female
Births

theory and the data are too scanty to justify a conclusion.

The so-called Schenck method of inducing the birth of a boy was to "force-feed" the mother on nitrogenous food, at the same time eliminating starch and sugar from her diet. The aim was to lower the sugar content in the woman's blood and so weaken the ovum, which Schenck regarded as male. One well-known condition that appears to refute Schenck's claims is found in the fact that women suffering from diabetes mellitus, during which there is a large amount of sugar in the blood and the urine, bear boy babies and girl babies with about equal frequency.

Many people believe sex is influenced by the relative ages of the parents. Old men married to young women are supposed to beget male children more often than females, since it is assumed their spermatozoa are less vigorous proportionately than are the ova of the young wives. But the fact is that such marriages result in the birth of about equal numbers of both sexes.

Perhaps one of the most generally accepted theories of sex predetermination is that of *cross-heredity*, already alluded to. This was advanced by Starkweather, who holds that the sex of the child will be determined by the healthier and stronger of the parents at the time of conception—the child being of the sex *opposite* to that of the weaker parent. In general, the application of this theory is regarded as unphysiological, since it requires one prospective parent deliberately to lower his or her vitality.

Parental
Health and
Sex Deter-
mination

Dr. J. Dusing, a German physician, has advanced another interesting theory. He contends that "no one theory adequately accounts for the determination of sex," and that "the truth must be sought in a combination of theories." He believes, with Starkweather, that sex may be influenced by the vigor of the parents at the time of conception and that the higher the state of health in both parents the greater the probability of girl children resulting from conception; while, on the contrary, a lowered vitality increases the likelihood of male children. Dusing maintained further that the young ovum presumably was more vigorous and better nourished than an older one. Hence conception early in the intermenstrual period would tend to produce females while a later



PHOTOGRAPH EWING GALLOWAY

Even the unwarranted amount of clothing that shrouds them does not conceal the robust health and finely modelled heads with which these vigorous infants are endowed.

conception would tend to produce males. While his premises do not coincide entirely with Thury's, his conclusions tend to bear out the Thurian doctrine.

An interesting but highly improbable theory suggests that sex is largely dependent upon tidal aspects; that is, if conception takes place within the six-hour period of the *incoming tide* a male will result; if it should take place in the corresponding period of the *outgoing tide* a female child would be produced. This belief is said to be based on the assumption that the primordial male cell is the seeking element and therefore the element most active in the feeding and breeding time of the incoming tide, while the female is the negative or quiescent element and most likely to predominate in influence during the outgoing tide. In any event, its sponsors say that, given the time of conception in relation to the tidal condition, they can predict with certainty the sex of the unborn child; also that parents who have brought about conception according to these tidal influences have succeeded in obtaining the child hoped for.

PRENATAL CULTURE.—It was formerly thought that, by her thoughts, a pregnant woman could not only make her children intellectual giants or moral degenerates but also control their sex. Today it is generally recognized that this idea is without adequate foundation.

A pregnant woman may play some musical instrument

Interuterine
Influences

or hear that instrument played for hours daily; she may paint or look at paintings by the hour; she may write poetry or prose or music or drama, or enjoy any of these excessively; she may continue her work at the head of some woman's movement, in politics, or in big business; yet it is now confidently believed that none of these activities will have the least influence on the fetus.

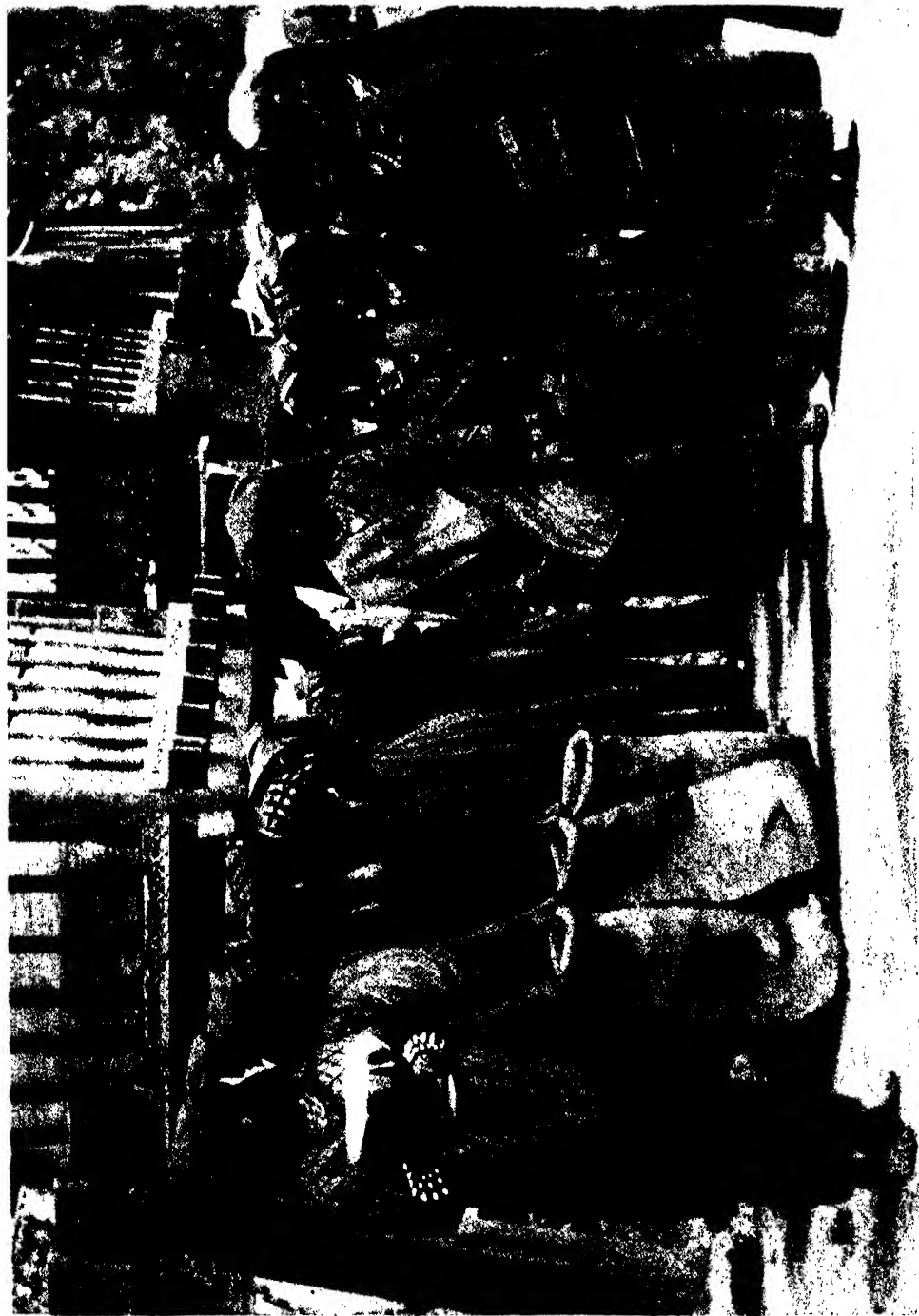
CHILDREN OF EARLY AND LATE LIFE.—Under *The Age To Marry*, some of the manifold advantages of early marriage have been presented. Here the relation of the mother's age to pregnancy and childbirth will be considered. The normal sex life of a woman lasts about thirty years. During the first five years of this time her body and her mind should be allowed to mature, but, generally speaking, the earlier after she is twenty childbirth is experienced the easier and less dangerous will it be. However, many young women have disturbances during pregnancy and difficult childbirth with lacerations and other undesirable effects, while many women over thirty-five have normal deliveries. But in the majority of cases it will be far easier for the young woman to go through a first pregnancy and childbirth than for the woman of middle age.

Best Age for
Childbirth

Woman's physical function in nature is the perpetuation of the race through the bearing of children; and the natural beginning of the child-bearing period is indicated by the fact that menstruation begins around fifteen and that the woman is fully mature for motherhood by eighteen or twenty. In the early twenties the woman's tissues are elastic, her physiological processes are still on the up-grade and her strength is at its height. These conditions should remain perfect for the stress of pregnancy and childbirth into the late thirties; hence a woman should be as fit for motherhood, even for her first childbirth, all through the twenties and even to the age of forty as at the beginning of this period.

Many women at thirty or thirty-five are physically as fit for motherhood as any younger woman. A woman, known to the writer, when at the age of forty-two, had her first child and had less trouble during pregnancy and at childbirth than most younger women expect.

Much depends upon the "physiological youth" of the



PHOTOGRAPH BY E. W. GALLOWAY

PLATE 48. One of the rites of the Sumatra wedding ceremony is the collection by bridesmaids of gifts of rice from guests.

Encyclopedia of Health Volume II

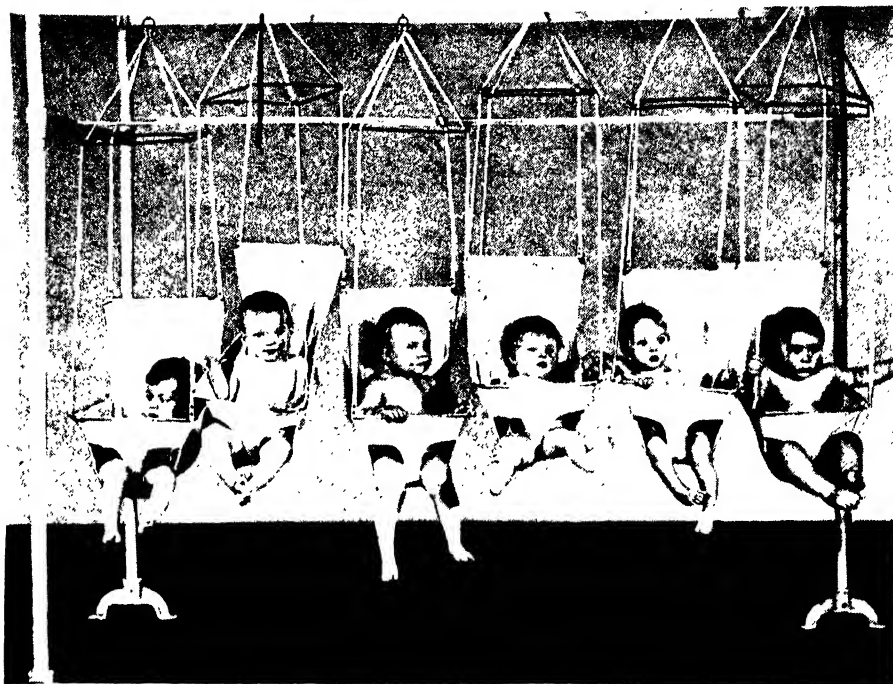
woman. Some women of twenty-five are "older" than others who have lived ten or more years longer; and many of thirty-five or older have more youthful energies, tissues and functions than others in their earliest twenties. To a great extent these conditions depend upon heredity, but also very much upon how one cares for one's health. If the daily program is such that the body is nourished without being overburdened, if elimination is maintained at normal and energies are conserved, there should be no rapid loss of youth and vitality. The woman who exercises wisdom in caring for her health should be able to bear children, whether the first or the twelfth, as easily at the age of thirty-five or older as she could have borne them at twenty.

COITION DURING PREGNANCY.—Often there is no cessation of sexual desire in women during pregnancy. Those who base rules for human behavior upon the habits of animals point to the fact that the females of the lower species permit no male approach while they are bearing young. Human beings and animals, however, are widely different. The animals have no sexual cravings once they become pregnant; but a great many women observe during pregnancy either no reduction of these cravings or a pronounced increase.

Sex Life
during
Pregnancy

When a pregnant woman has no sexual cravings and the husband is of such a nature that continence during the period of pregnancy will not be a hardship, it certainly will do no harm to abstain from the marital relations. The woman without desire may permit indulgence by her husband without harm to herself. If the wife experiences a strong desire and this desire is not appeased, both she and the child may suffer: many of the so-called symptoms of pregnancy may be greatly aggravated, various nervous disturbances also develop, and the baby may be born irritable and nervous. Unsatisfactory or excessive sexual relations may bring on the extreme vomiting of pregnancy, though, of course, this condition may be due to other causes.

During pregnancy, as at other times, the advisable frequency of marital relations will depend upon the condition of the partners, but the woman should always decide the matter. Rarely will she have an excessive desire; usually it is the husband who is insistent. Regular and *normal* marital rela-



PHOTOGRAPH INTERNATIONAL NEWSREEL

With reasonable precautions for its safety, the infant is equipped to take care of itself in the matter of play and exercise.

tions conduce to an undisturbed pregnancy, easy delivery, and the birth of a non-irritable baby. The woman who has no sexual desire may be either abnormally relaxed or abnormally tensed, neither of which conditions is favorable to childbirth. If relations are excessive and violent, there may be abortion or internal injury that makes pregnancy and childbirth troublesome. But if these relations result in the full relaxation of the woman, it is a mistake to consider them as physically injurious to the fetus. Until near the termination of pregnancy, the uterus, with its contents, is so high in the pelvis that it will not and cannot be directly affected during coition.

Coition
During
Pregnancy

Sometimes it is stated that coition may be continued only during the first month or two of pregnancy. But with due regard to frequency, satisfaction of the wife, and proper posture after the fifth month, the relations may be continued into the final month. There are authorities who make the claim that the nearer the relations come to delivery the easier will the delivery be, provided the woman makes complete response.

If she makes full response up to the climax but fails to surmount this, hence is left highly excited and tense, the earlier in the pregnancy the coition is discontinued the better.

As to the frequency of coition during pregnancy, no one can lay down a rule that will apply to all cases. If they were normal before pregnancy began there need be no modification of the relations. However, if they have been as frequent as daily or three or four times a week it will, as a rule, be better to reduce them to twice a week at most. Even if the woman has desires these may easily be subdued by relaxation and sleep, necessary walking and the general activities of the house.

A reason sometimes given for continuing the relations late into pregnancy is that six weeks—or perhaps as many more—of complete abstinence are required after delivery in order that the mother may return to pre-pregnant health and that the breast milk may become normal. Too early resumption of coition after childbirth may cause failure of the uterus to return completely to normal size. It may also cause chronic pelvic congestion, with its various symptoms, and affect the quantity and the quality of the mother's milk.

Frequency of
Relations in
Pregnancy

THE EXPECTANT MOTHER

Section 4

NO SERVICE of mind or body is so vital to humanity as that of motherhood. Only crucial emergencies involving man's existence approach its importance. Self-preservation and self-perpetuation stand side by side as the primal laws of life.

We are emerging from an era in which hypocrisy has gone far in its attempt to camouflage the physical phases of maternity. It is true that art and literature have idealized motherhood and that this idealization has been a saving grace. It has given men an inkling of the debt the world owes to the mothers of the race, and every human creature, as well as every mother, is in some degree benefited by it. Yet the honest, unqualified acknowledgment due to woman for the physical achievement of bringing a new life into the world has not been fully recognized. The truth has been suppressed, or viewed only with averted eyes.

When years of search culminated in the discovery of the body of Andree, the distinguished Arctic explorer, his mortal remains were brought back to be buried in his native Sweden by the side of his mother. For during his life it had been his express desire that no matter where death might come to him, his body should rest in the same grave with that of her who bore him.

Motherhood
a Physical
Achieve-
ment

We know that maternity is not always requited with such appreciation. Its sacrifices and tasks may seem ill-paid in the main. Yet it is equally true that the joys and satisfactions of both motherhood and fatherhood are more precious than anything purchasable by gold. A generation ago, in his painstaking and comprehensive text-book on childbirth, Dr. Henry J. Garrigues wrote as follows of those who might be admitted to the presence of the prospective mother when the birth of her child was near at hand:

"One of them should be the husband, if there is one. I

have always found that nobody has so soothing and comforting an influence on the parturient woman as the author of her trouble, and it is certainly the least he can do for her to witness her sufferings. Woe to those thin-blooded, pale-faced, selfish men who declare they cannot see blood, and who keep away from home or retire to another room in order not to hear the cries of their wives in labor. They are unworthy of a woman's love and unfit for the stern duties of fatherhood. The second person may be the patient's mother, if she is not too old, too nervous, or too sentimental. She is a living proof to the sufferer that one may go through such an ordeal and still be alive."

Modern methods have lessened the difficulties and dangers of maternity, and practice tends to admit no one but the attending physician and the nurse to the birth-chamber. Nevertheless, the ethical and practical considerations here introduced must be faced squarely so long as perpetuation continues.

These truths are of great import to those to whom fatherhood or motherhood is a possibility. They are especially important to those approaching the experience of motherhood. For idealization will not take the place of information regarding the processes of pregnancy and parturition. Let us honor the mother, but at the same time let us see that she is safeguarded by the complete knowledge necessary to eliminate the dangers and minimize the sufferings associated with the process of reproduction.

Face to
Face with
Motherhood

"Courage," declared Ralph Waldo Emerson, "consists in having done the thing before;" but when face to face for the first time with a situation demanding fortitude we must rely on the experience of others. The information given in this section is placed before the reader in the hope, not only that it will supply the courage which comes from knowledge, but that it will lessen the need for heroism by showing the prospective mother and her husband how to eliminate those dangers and pains which civilization has added to a natural and wholesome physiological process.

MATERNITY AND HEALTH.—Many women shrink needlessly from motherhood because of the fear that it will "ruin their health." This fear is not only an important factor in the failure of women to respond fully during sexual relations,

but in itself tends to produce ill health. There may be some justification for the fear, for certainly there are many women whose health has been impaired during pregnancy. But since pregnancy is a natural state, it cannot in itself cause ill-health. It is only when health is already unbalanced that serious disorders develop during or as a result of pregnancy. The fact that millions of women have several pregnancies and child-births with no disturbance of health should prove the truth of this statement.

**Health after
Pregnancy**

A great many women suffer from displacement or abnormality of the uterus or other pelvic organs, yet are able to conceive and bear children. Starting with such conditions, and lacking knowledge of health preservation, it is not surprising that difficulties arise during pregnancy, even when there may have been no apparent ailment before.

One reason for much of the disturbance of pregnancy is the tendency of women to overeat. Of course, a woman who is carrying a child must "eat for two," since the child is deriving its nourishment from her blood. But as the child gains only a pound a month on an average (even slightly less), the majority of women could *reduce* the quantity of food they usually consume and still have enough to satisfy their needs during pregnancy. Adding to the diet at this time produces a heavy toxemia that in all probability will cause trouble. But this is not all. In addition to taking in more fuel the pregnant woman often reduces her physical activity. In consequence she may become fat (if her digestion and assimilation are good), or may lose weight (if they are not good). Volume II, on *Diet*, will serve as a helpful guide in such matters.

Many women are constipated under ordinary conditions, and during pregnancy may become more so. Then their badly regulated diet, plus the constipation and deficient water drinking, produce a concentrated urine that may cause kidney degeneration. These conditions, together with reduced activity and often reduced bathing, force the skin to throw off heavily charged perspiration, but far less in quantity than is necessary for good health. Any pre-pregnant disorders are practically certain to be aggravated by these abnormal conditions, and when combined with excessive or unsatisfactory sexual relations there is certain to be impairment of health.

Such conditions tend to produce a state of the tissues which is unfavorable to normal delivery. If there is tension there may be laceration, slight or severe, following a prolonged delivery that causes other damage to the tissues, including those of the bladder and the rectum. If there is considerable loss of tone in the passage tissues there may be precipitate delivery due to the inability of these tissues to restrain the passage of the child. In this case the pulling of the placenta upon the uterus may result in damage to this organ. Lacerations may also be caused by such precipitate delivery.

Impatience and inability to endure pain are causes of damage during childbirth that may lead to health impairment. Not infrequently women beg for relief at the first birth pains. Naturally they want the birth over as soon as possible and with as little pain as possible. Many doctors, also growing impatient, make an instrumental delivery when, with a little time, a normal one would have taken place. This haste often causes trouble for which neither pregnancy nor childbirth can be blamed.

The mother's figure should not lose its beauty following child birth. If it does, the child-bearing itself is not to blame. The fault lies with habits of living that permit the body to lose its tone or to fail to recover it after childbirth. Many women would get fat whether pregnant or not; but if they get fat while pregnant, they blame pregnancy for it. The breasts may lose their shape and hang pendulous, yet it may be possible to restore almost as firm a condition as existed in the virgin. Means to restore the bust to proper form are discussed in later pages.

The Physique
after
Pregnancy

With comparatively rare exceptions, the diseases and disorders that develop during pregnancy are unnecessary.

PREGNANCY AFTER OPERATIONS.—Operations upon the abdominal or pelvic organs may or may not interfere with or complicate pregnancy. Usually a surgeon, after performing an operation that bears upon this state or childbirth, will inform a woman as to the possible dangers of pregnancy. It is impossible to state here what complications a woman may expect after having had an operation. Unless it is a clear case of emergency, a woman, and her husband or prospective husband, should ponder the matter thoroughly before she sub-

mits to an operation upon the abdominal or pelvic organs. A woman who desires children should ascertain what effect, if any, an operation is likely to have upon her capacity for child-bearing. If there is any way to avoid an operation for a condition that does not in itself strictly prevent childbirth or contraindicate pregnancy, the operation should be avoided, or postponed until the desired child has been born.

Details of
Gestation

EVENTS OF PREGNANCY.—One would not expect the union of a microscopic male germ cell and a female cell barely visible to the unaided eye to be attended with any sudden change within the body. We must doubt the statements of women who have been pregnant several times and who, on the basis of previous experience, claim they have certain symptoms that indicate just the time of this union. Except through coinci-



PHOTOGRAPH PACIFIC & ATLANTIC

Instruction of nurses in the making of footprints of new-born babies for identification purposes. At the Shore Road Hospital in New York City, at which this photograph was made, fingerprints also are taken of each infant and a special necklace bearing the name of the child is worn to insure against errors in identity.

dence it seems extremely doubtful if any physical or psychic symptom occurs at this time.

The great majority of women are pregnant several weeks before they are aware of the fact. The first indication that conception has taken place is usually the failure of a menstrual period to make its appearance. Yet the period often fails without pregnancy. Therefore, if the menses fail to appear, a woman can only suspect that she is pregnant. On the other hand, in many pregnant women there is a sufficient discharge at the usual menstrual period to lead them to think that they are merely having deficient menstruation. Such discharge may occur once, twice, or more times after the onset of pregnancy, and in rare cases there is a monthly discharge throughout the entire period. This is usually due to some disorder of the uterus or other abnormal condition which, in the majority of such cases, terminates in miscarriage. Often the miscarriage takes place at the time menstruation would have occurred, so it is easy to confuse the symptoms of the two conditions.

Women more often make the mistake of considering themselves pregnant when they are not than of overlooking pregnancy when it exists. In an occasional case, however, as when pregnancy takes place during nursing, it may exist for several months before it is recognized.

The union of the spermatozoon with the ovum is the beginning of the life of a new human being and is called *conception*. This occurs normally in the Fallopian tube. Changes at once begin and are continued later in the uterus. The period from conception to the beginning of labor is called *pregnancy*.

Union of the
Ovum and
Spermato-
zoon

A woman should so live at all times that, in case of conception, she will be able to have a normal and safe pregnancy and easy delivery. But if she has not done so, it is important that the existence of pregnancy should be determined as soon as possible, so that she may at once adopt the measures necessary for the welfare of herself and her child. The positive diagnosis of pregnancy is based on certain signs which, while not conclusive when taken singly, are significant when they appear simultaneously.

Only at a time when the matured ovum has escaped from its containing follicle can impregnation take place. But ovula-

tion and impregnation may take place without any menstruation, as demonstrated by the occasional occurrence of conception before the establishment of menstruation, or after the menopause, as well as during lactation.

Changes
in the
Ovum

It is believed that impregnation of the ovum practically always takes place, not in the uterus but in the Fallopian tube, and usually toward the outer or fimbriated end. In an occasional case the ovum has been impregnated before it reaches the tubal canal (extra-uterine pregnancy), and the object of its travel down the tube having been accomplished, it fails to make this journey and settles in the tube, or elsewhere in the peritoneal cavity, for its development. In that position development can never be completed.

As development begins as soon as impregnation has been effected, in normal conception, considerable change has already taken place in the ovum by the time it reaches the



PHOTOGRAPH UNDERWOOD & UNDERWOOD

A section of a training school for midwives in Berlin, Germany, caring for maternity cases.

uterine cavity, where it then becomes lodged for further and complete development. The part that attaches to the uterine lining forms the placenta or afterbirth, through which the developing fetus receives its nutrition. The time required for the passage of the ovum throughout the length of the tube to the uterus usually is from eight to ten days. During its passage it accumulates an albuminous covering thought by some investigators to be impervious to the spermatozoon. This fact, if it be a fact, combined with that of prompt degenerative changes in the unimpregnated ovum, leads to the belief that impregnation must take place before the ovum reaches the uterus.

In order that impregnation may take place the time of ovulation and coitus must roughly correspond. It is not known exactly how long the parent germs remain capable of impregnating and being impregnated; but the spermatozoa of normal men have great vitality. Even outside the body they continue to have movement for eight days, and in the genital tract they are known to remain active for a week and longer. Because of the frequent presence of an acid secretion within the vagina (even though only slightly acid at times) the human spermatozoa lose their power to penetrate the ovum if they remain there. In the alkaline mucus within the internal female organs their movement is favored and their vitality retained. The vitality and motility of the spermatozoa are so great that virgins, with intact hymens, have been impregnated when the male germs have been deposited only at the vaginal orifice.

Women vary greatly in their susceptibility to conception. Some become impregnated easily; others, through natural or acquired weakness or defect, may resist impregnation even under apparently the most favorable conditions. The same may be said of the procreative power of men. Often a woman and a man will be incapable of producing children with each other; yet each may be a partner to a fruitful union when divorced and remarried. Some women become impregnated only at certain times in relation to menstruation; others may conceive at practically any time of the month. The latter is explainable by the fact that the ova may be liberated at varying times and that an ovum may remain in the tube for as long as seven to ten days, while the vitality of the spermatozoon

Conditions
Affecting
Conception

Conditions
Favoring
Conception

may endure for six or seven days. Some unusual sexual stimulation or excitement also causes the premature discharge of an ovum. Hence, while conception is most likely when intercourse shortly precedes or follows a menstrual period, it may occur at other times.

In the majority of women, however, it may be said there is a time each month when conception is least likely to occur. This is the interval between the eighth or tenth day following menstruation and the third day before the succeeding period.

After conception occurs the ovum, which at this time is about $\frac{1}{125}$ of an inch in diameter, becomes adherent to the lining membrane of the cavity of the uterus continuing to grow from the moment of fertilization. By the end of the first month of gestation, the ovum has grown to the size of a pigeon's egg; in another month to that of a hen's egg. At that time it is membranous in character and filled with a fluid in which floats the embryo, at this stage about an inch long. In this embryo one can begin to distinguish the forming body as well as the already forming features, the eyes, nose, mouth, ears and the genitals. The heart is fully formed and the other internal organs are beginning to take form.

The Embryo
in the Uterus

The embryo is connected to the membrane of the ovum by a delicate cord through which blood-vessels carry it nourishment. This membrane is smooth on its inner surface, but the outer surface, that is, the surface in contact with the inner wall of the uterus, is rough and covered with villi or small projections which fasten themselves to the lining membrane of the uterus and dip into the thickness of this membrane. After the second month the villi begin to disappear at all points except where they are actually attached to the inner surface of the uterus. At this point they grow longer and branch out, and become more strongly and closely attached. While they are growing longer and stronger the mucous membrane of the uterus, at the same point, becomes thicker and it, with the growing villi, begins to form the structure called the *placenta* or afterbirth.

After the placenta starts to form the growth of the embryo is more rapid. By the end of the third month it has attained the length of three inches and has developed a vague resemblance to the shape it will retain during its growth and develop-

ment in the uterus. It is now called a fetus. By the end of the fourth month it is about five inches long and in another month it has grown to seven inches.

Some time between the fourth and the fifth months the fetus begins to show signs of movement—what is called *quickening*. Frequently this causes nausea. By the end of the fifth month the movements are marked. The peculiar sensation felt by the mother is described as “feeling life.” Should it be born at this stage, there is enough vitality in the fetus to cause it to live for a short time, from a few minutes, perhaps, to a few hours.

“Quickening” in
Pregnancy

In another month the fetus is about eleven inches long and its movements are strong. Should it be born at this time it may live for several days, but usually it will eventually die. At the end of the seventh month it is about fourteen inches long. Should it be born then there is a possibility that it may live. Baby incubators sometimes save the life of an infant born as early as the seventh month. At the end of the eighth month the fetus is about fifteen inches long and is viable if properly taken care of. At the end of nine months it is about seventeen inches long and during the tenth month it reaches its full intra-uterine growth and development, labor sets in and the infant is delivered.

It will be noted that the lunar month or moon month consisting of twenty-eight days (not the calendar month) is applied to the periods covering the development of the fetus month by month. The period of gestation is ten lunar months or a total of 280 days.

During the growth of the fetus great changes occur in the uterus. As the fetus grows the uterus becomes more and more distended, its walls thicken and its muscular fibers grow both in length and in thickness. By the fourth month, the uterus has attained such size that it cannot be accommodated in the pelvic cavity, so it extends upward into the abdominal cavity. From this time on it distends the abdomen more and more until by the time the fetus is matured the upper end of the uterus will reach a point as high as the lower end of the breast-bone and will practically fill the entire abdominal cavity, pushing some of the abdominal organs out of their normal positions.

At this time the uterus, with the fetus and the placenta, weighs a considerable amount and becomes so top-heavy that it falls forward if the abdominal muscles are unable to withstand the pressure against them. This gives to the abdomen a characteristic protuberance, causing a change in the center of gravity that makes the mother throw her chest backward and spread her legs in order to preserve her balance.

The pressure of the heavy womb upon the organs in the pelvic and abdominal cavities will sometimes produce irritations and interfere with the functions of these organs. Pressure upon the bladder may create a desire to urinate frequently. Pressure upon the lower portion of the intestine may cause constipation; pressure upon the large blood-vessels, especially the veins which bring the blood up from the lower extremities, may cause stagnation and swelling and the development of varicose veins. Hemorrhoids or piles may result from pressure upon the veins of the rectum.

In addition to these changes the presence of the fetus in the uterus causes other important changes in the woman's organs. As the fetus receives its nourishment from the blood, the heart of the mother is compelled to do extra work, and as it produces waste matter which is deposited in the blood and enters the mother's circulation to be finally discharged through her kidneys, these excretory organs must also do extra work.

The object of ovulation having been accomplished when conception takes place, menstruation normally ceases. But other conditions may cause suppressed menses—anemia, chlorosis, tuberculosis, diabetes, certain mental and nervous disturbances, the climacteric, chronic kidney disease, obesity, goiter, fibroid tumors, catarrh of the neck of the uterus, ovarian cysts, pelvic adhesions, acute rheumatism, scarlet fever and gastric ulcer. A deficient diet also may cause delayed, reduced or complete suppression.

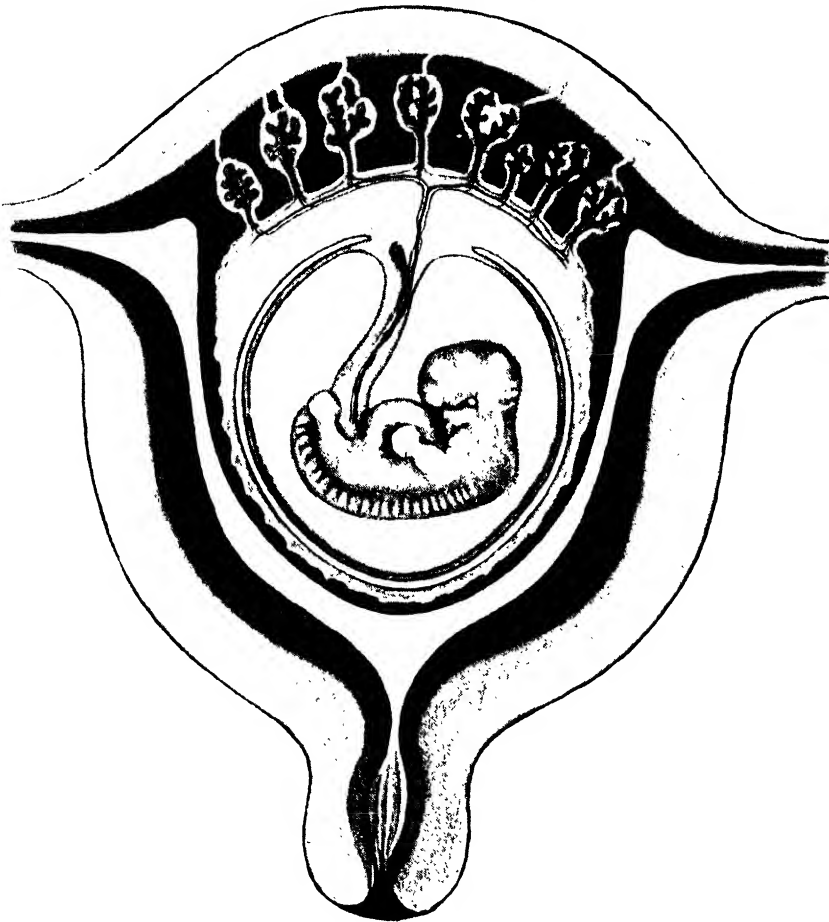
Breast
Symptoms in
Pregnancy

A woman who is pregnant for the first time may not associate certain breast symptoms with possible pregnancy; but if she has had one or more children she will detect and readily associate with it a tingling, throbbing or prickling feeling in the breasts, or perhaps a feeling of fulness, possibly both, and sometimes pronounced tenderness, so that even the weight of clothing causes discomfort.

The earliest intimation of pregnancy in some cases is a change in the breasts. By the end of the second month, the pigmented circle around the nipple (the areola) becomes darker, the nipples begin to swell and darken, the shade of this pigmentation depending upon the woman's complexion. Within this areola there finally develop a number of small shot-like elevations due to the stimulated milk glands.

Early Signs
of Pregnancy

During the third month of pregnancy the breasts enlarge, become firmer, and there may develop a prominence of the veins immediately below the skin. Shortly after this time the nipples, upon being squeezed, yield a clear white fluid,



This diagrammatic drawing of the embryo at one month shows how the fetus is suspended in clear fluid. It receives both oxygen and nutriment from the uterine blood-vessels.

which later becomes opalescent and slightly yellow. It is not milk, as most people believe, but the forerunner of milk. None of these breast changes are positive indications of pregnancy, though women who have not before been pregnant may take them as reasonably dependable indications.

Nausea in Pregnancy

Nausea and vomiting are symptoms which frequently appear early in pregnancy and are regarded by many as the most reliable indicators of the condition. The nausea may begin about the sixth week but sometimes appears earlier, and in some cases continues for six weeks or even longer. This symptom is called "morning sickness" because it is noticeable mainly, or only, upon rising in the morning. It is thought to be a reflex disturbance of the stomach through changes taking place in the uterus.

The morning sickness sometimes, though fortunately rarely, becomes so pronounced as to endanger the life of the woman, when abortion may be needed to save her. However, internal-secretion treatment is now used with success in many severe cases. Nausea and vomiting are not infallible symptoms, as they may originate from conditions quite unassociated with pregnancy. Many women pass through the entire period of pregnancy without gastric discomfort.

Often there is a change in mood during pregnancy. A woman by nature amiable in disposition may become morose, irritable, melancholic; while a phlegmatic woman may become vivacious. Sometimes a loving wife comes to hate her husband, while one who has been rather undemonstrative may become extremely affectionate.

In some cases there is a feeling of dizziness or faintness, and occasionally there may be actual fainting spells. Perversions of taste may develop, with strange fancies for unusual things, sometimes foods or other substances ordinarily distasteful. These, however, may be considered as among the abnormal symptoms of pregnancy. Constipation is usual and often becomes stubborn and pronounced.

In addition to darkening of the nipple and the areola there develops increased pigmentation at other areas also, usually a dark line extending from the navel to the center of the pubic bone, often darkening beneath the eyes, especially in brunettes; there may also be dark blotches elsewhere on the face and the

body. The external sexual organs, especially the labia minora, may become decidedly darker.

Often the bladder becomes irritable and frequent urination, both day and night, may be necessary. As the gravid uterus tilts forward it tends to press upon and reduce the capacity of the bladder; or there may be a reflex irritation. But irritation may also be due to nervousness or to some condition not related to pregnancy.

Yet even all these symptoms taken together present no absolute assurance of pregnancy, though it is highly probable when they are present. The mere enlargement of the abdomen or of the uterus is not a positive indication, for a tumor or some other condition may cause a more or less similar enlargement. The one sure sign of pregnancy is the presence of life in the fetus, the "quickening" movement which is felt in the uterus, usually after about four and a half months of pregnancy. At first there may be a slight fluttering, as of bird's wings, or a quivering or a light tapping, the movements becoming progressively stronger until the mother's sleep and rest at night may be disturbed. Usually, however, they are not uncomfortable, and are welcome as definite proof of pregnancy. At about the time of the quickening and at any time thereafter the beat of the fetal heart may be heard. It is usually about twice as fast as the mother's heart-beat.

"Quickening" in Early Pregnancy

When the ovum has become impregnated a rapid division of its germinal portion into two segments takes place. These divide into four, eight, and so on, until a mass forms, known as the *mulberry mass* or *morula*. The segments are forced by a clear fluid to the circumference of the ovum where they form a double layer of cells. Then on the outside of this mass appears a small oval elevation surrounded by a depression in which is a small dark line called the *germinal streak*. This is the group of cells that eventually becomes the fetus. About it the various parts of the embryo will be grouped, the remainder of the ovum serving only for covering and temporary nourishment.

This germinal streak gradually sinks into the center of the ovum and the outer layer of cells folds together around it, forming a sac called the *amnion*. Later within this sac accumulates a fluid called the *liquor amnii*, for which reason the amnion

with its contents is known as the "bag of waters." The normal quantity of this fluid varies from two pints to two quarts at maturity of pregnancy. When the amount is excessive the condition is termed *hydramnios*. When it is scanty the amnion sometimes adheres to the embryo, thus producing malformations. Sometimes the amniotic fluid is normal in amount and yet fibrous bands stretch across from one side of the cavity to the other. These may cause scars, the splitting of the nose or lip, or even the amputation of parts. This splitting is not the cause of harelip.

The amnion, with its contained fluid, brings about dilation of the cervix during the first stage of labor. When it has served its purpose and dilation is nearly complete the membrane usually ruptures and most of the fluid escapes. This rupture is called "breaking of the membranes" and the escape of the fluid termed the "coming away of the waters." The two terms are interchangeable. The small amount of fluid that remains comes away after the birth of the child.

If the amnion ruptures early in labor, thus necessitating dilation by the body of the child, there is said to be "dry labor." Occasionally (rarely) the child is born with the bag unruptured. In this case it is said to be "born with a caul." Sometimes only a part of the membrane remains over the child's body, head or face. Formerly it was considered lucky to be born with a caul. The membrane was thought to be an infallible safeguard against drowning, and midwives used to sell it for magic purposes.

DIET IN PREGNANCY.—The most important single factor the pregnant woman must consider is diet. She must provide nutriment for two, yet she does not require an extra quantity of food, as is commonly believed. In most cases her food allowance may be reduced toward the termination of pregnancy. Women frequently put on too much fat during pregnancy. If the increase in weight is gradual it will not be necessary to check the rate of gain before the middle of the period or perhaps the sixth month. But after this an attempt at least should be made to prevent further gain. If a gradual reduction can be induced without loss of strength and energy the last months of pregnancy and the delivery will be easier.

If too much food is taken the mother will suffer from diges-

tive disturbances, or a pronounced toxemia, or both; or the excess will be stored as fat in the mother's tissues and to a lesser extent in the baby's tissues. But if the mother eats too little she will nourish the baby at the expense of her own body, which will become devitalized and demineralized.

There is no difference between a *normal* diet for the non-pregnant woman and a *normal* diet for the pregnant woman. There may be certain cravings during pregnancy that are absent at other times; but these usually result from the absence of certain natural foods. It is not the quantity but the quality of food that calls for special consideration. Ordinary foods and diets are inadequate in quality but excessive in quantity. During pregnancy they are particularly so.

Such diets are a prominent cause not only of loss of teeth by pregnant and nursing women, but also of the general impairment of health. The conventional foods, as prepared, lack the elements that nourish teeth and bones; as a result, the developing child takes these elements from the mother's teeth, bones and blood. Nature does not hesitate to sacrifice the mother to give the baby a good start in life. If her diet contains sufficient calcium, phosphorus and other mineral elements, she will suffer no loss of these elements herself, for Nature will take them for the child direct from the food eaten.

White-flour products are a menace to the health of anyone and are particularly injurious to the pregnant woman. White flour is almost wholly lacking in mineral elements and is likely to prove constipating. If the woman eats abundantly of fruits, vegetables and milk she may eat some white-flour products without much danger of injuring her health.

The pregnant woman should eat large quantities of fresh vegetables and raw salads. It may be necessary to use canned vegetables, but fresh vegetables should always be used when obtainable. Fruits also should be eaten in quantity. If alkaline or base-forming foods (fruits and vegetables, mainly) are not provided in the diet, the tissues will be destroyed to provide the elements that neutralize the acids generated by meats, fish, cheese, sugars and starches. This condition of "stealing" from the tissues cannot go on long without resulting in great, perhaps irreparable, harm. *Osteomalacia* or bone softening sometimes occurs in women who have borne children in rapid suc-

Fruits and
Vegetables
During
Pregnancy



Standing erect with arms outstretched at full length from the shoulders, then bending over as far as possible, first with one hand and then the other, is an exercise beneficial to the prospective mother.

cession and while doing so have lived on a grossly inadequate diet. The bones may become so soft that the legs become bent and deformity of the pelvis becomes so pronounced that childbirth is impossible. The bearing of children in rapid succession is not to be recommended; but regardless of how frequent the pregnancies, no woman will have osteomalacia if her diet is adequate in quantity and quality.

Sometimes mothers intentionally undereat

during pregnancy, thinking that this will keep the child small and make labor correspondingly easier. Usually, however, labor is easy or difficult according to the size of the fetal skull, so the slight increase of fat in the child's body, which might result from the mother's diet, is not an important factor. The size of the head cannot be predetermined by any known methods. It is sometimes claimed that if the mother lives on a diet low in minerals the bones of the child will be soft, but the penalty for the mineral starvation has already been described. Nature takes from the mother the things that the child must have.

Because of the extra waste and the dangers of waste retention during pregnancy, the food eaten by the mother must

be such as to promote proper functioning of the skin, kidneys and bowels. It must be adequate to build and nourish the fetus without drawing materials from the mother's tissues. Moreover, proper food during pregnancy is an essential factor in preparing the mother to nurse her baby. That these various ends may be accomplished the expectant mother must not only eat suitable food but she must digest and assimilate it. For this reason overeating, the dangers of which are multiplied during pregnancy, must be avoided. Indigestion may be caused by overeating, by eating indigestible foods, or by eating when disturbed or unhappy. Reduced assimilation usually will follow indigestion. Every effort should be made not only to select proper foods but to maintain a state of mind that will insure normal digestion. If the expectant mother is in a physical or a mental condition likely to interfere with normal digestion, the meal should be delayed or only fruit juice taken.

If accustomed to a fairly simple but well-balanced diet the expectant mother need make little if any change in her food. A schedule of three meals a day is best for the majority of women, but one who has been accustomed to two meals may find two enough. If three meals are eaten the pregnant woman should not need milk or other food between meals, but on two meals the drinking of additional milk or fruit juice may be advisable.

It is important that the food of the mother-to-be contain considerable roughage to increase the bulk of the intestinal contents and stimulate peristaltic action, thus helping to overcome constipation which is often stubborn during pregnancy. A tablespoonful of bran or mineral oil, or both, may be taken with one, two or three meals daily, according to need. Laxatives are not needed and should not be taken. Fluid acts as a solvent for food and waste material and stimulates the activity of kidneys, skin and bowels. Three quarts daily is none too much; in fact this may be given as a minimum. Most of it should be in the form of plain water and fruit beverages. One quart should consist of milk, which may be drunk, or taken in soups, desserts and custards and on cereals. Some of the soured forms of milk also may be drunk.

Laxative
Foods in
Pregnancy

Alcohol should not be taken under any circumstances, and it is best also to avoid tea, coffee, cocoa and chocolate. How-

ever, if milk cannot possibly be taken or provided in sufficient quantity otherwise, these beverages may be used very moderately. But as they are stimulants and detrimental to the nerve tissues, they should be avoided so far as possible.

FOODS BEST DURING PREGNANCY.—Below are given the foods best suited to the pregnant woman. If there are no complications they may be used with safety.

Cereals.—Whole grains and their products. Milk, cream and fruit increase the food value of cereal dishes.

Breads.—Graham or whole-wheat bread, whole-grain corn bread and bran bread, rye and pumpernickel breads, are good; but all breads should be used sparingly.

Vegetables.—Green vegetables should be used abundantly, both cooked and uncooked. If not prepared in a waterless cooker, the water in which they are cooked should be served in a soup. Thin soups and broths stimulate the appetite and milk soups are an excellent means of using milk. As a rule, all vegetables may be eaten, but if any are known to cause flatulence they should be avoided.

Fruits.—Fresh fruits are to be preferred. Fruit juices, especially those of the citrous fruits, are excellent, as these are rich in vitamin C. Fruits should be used at least once daily, preferably two or three times. They are excellent aids in combating constipation, though stewed fruits are also useful for this purpose. The sweet fruits and honey, if desired, should provide practically all the sugar used. No fruit need be avoided unless it is found that certain ones cause disturbances.

Milk.—At least one quart daily should be used. As much of this as possible should be taken as a food beverage, and if one quart can be drunk still more may be used in soup and desserts.

Meat.—Flesh foods should not be used more than two or three times a week, the least harmful being liver, beef, lamb, fish, chicken and game. Nuts, eggs, milk and non-cream cheese provide protein of much better quality. Nuts are particularly valuable because they increase the quantity and improve the quality of the mother's milk.

Fats.—Butter and cream are the most wholesome and satisfactory. They provide not only fuel in a palatable form but important vitamins. Olive oil, peanut oil, peanut butter and

bacon may be used if desired, the oils being permissible in considerable quantities providing they do not disturb digestion. Oils may be used with lemon juice instead of vinegar in making simple dressings for salads. Cream cheese may be used when desired, instead of butter or cream.

Desserts.—To many people a meal is not complete unless a dessert is taken. In general this merely adds to an excess of sugar or starch already provided. Cornstarch, chocolate pudding, tapioca, brown Betty and other starch foods are not desirable as desserts. Custards and junkets may be eaten if there has been no heavy protein in the meal. Gelatin may be used with simple non-protein meals. Ice-creams and ices should be used sparingly and preferably with fruit, vegetable, or cereal meals. In any case they should be eaten slowly. Fruit desserts are especially valuable; but when the meal has been strongly starchy all fruits, the acid as well as the sweet ones, should be avoided. An acid dessert should not be heavily sweetened with sugar.

Though the nausea of pregnancy is not primarily a stomach disorder, much can be done to relieve it by adopting a diet largely of fresh fruits. Such a diet will lessen systemic acidity and toxemia, and therefore tend to check various abnormal processes. This diet is excellent also to bring about easy childbirth, or, at least, to reduce its pains.

The expectant mother should avoid eating what does not appeal to her. If there is desire for no other food than fruits, then an abundance of fruit may be eaten. As a rule this will quickly bring a desire for more substantial foods. The period of limited diet is not likely to continue long enough to deprive the body of any necessary food elements, particularly when the fruits are used freely.

If illness develops, fasting may require consideration during pregnancy. A prolonged fast, however, must not be undertaken, for it is important that full nutrition be maintained; but in certain cases a short fast may be taken with decided benefit. In an acute illness or in any other condition in which the appetite is lost, a fast of from one to three days may be of advantage, purifying the blood and restoring normal appetite. However, in most cases fruit juice will serve the same purpose; occasionally a variety of fruits may be better. There

Fasting in
Pregnancy

1616 EXERCISE DURING PREGNANCY

are cases in which an exclusive milk diet will be highly beneficial. A fast, longer than a day or two, should not be undertaken without the advice of a competent physician.

While the pregnant woman should not be morbidly anxious about her food, the subject of diet is important and requires care and attention. She should make a sufficient study of the subject to enable her to select intelligently the foods most satisfactory for her. When the knowledge of foods and their effects has been mastered and the appetite has been educated in the chief essentials, the woman naturally will make the proper selection and will then need to give the subject no further consideration. It is certainly not desirable to worry about food every time a meal is in prospect.

Exercise in Pregnancy

EXERCISE DURING PREGNANCY.—This matter is of keenest interest to the expectant mother. Many feel that during pregnancy they should conserve strength and energy in order to further the interests of the child. As a result they make the serious mistake of abstaining from exercising. The disagreeable sensations and strange feelings which they often experience reduce their desire for physical activity. The misguided advice given by the mothers of a past generation also tends to keep the young expectant mother inactive. Therefore it must be emphasized that if ever exercise is needed it is during this critical period when the maximum degree of health, strength and vigor is required.

If a woman has been accustomed to exercising before becoming pregnant she may continue with her activities for two or three months without modification. If she has been spasmodic in her exercising she should avoid particularly strenuous movements. If she has not been accustomed to exercise at all or has taken only light exercises irregularly, she should begin as early during pregnancy as possible to strengthen the muscles and improve her health, for the burdens do not diminish during the progress of pregnancy. If she waits until the condition has progressed several months she may not then have the health or vigor to take up physical exercises. But if she begins early her health and vigor should be such that the exercise program can be continued nearly to the final month.

Because of the possibility of producing abortion or premature labor, most pregnant women should avoid exercise in-

volving violent motions and jarring or straining. Horseback riding *before* pregnancy is one of the best of exercises for the pelvic organs; but after pregnancy, it should be indulged in only lightly and then only if the woman is accustomed to it. Exercises that will keep the woman in the open air, assist in inflating the lungs and facilitate deep breathing, strengthen the abdominal muscles and the ligaments that sustain the uterus and other viscera, are highly beneficial and usually may be taken with every assurance that only good will result.

Walking is the best example of constitutional exercises. During pregnancy practically every woman should walk from one to four miles daily. Comparatively few women, probably, would be able to start at once taking four-mile hikes; but by taking daily short walks the distance may be gradually increased until an endurance is developed that will permit of three- or four-mile walks without inconvenience. These may be continued to within a few days of confinement. A fairly long open-air walk daily is one of the best of all measures for preserving the health and strengthening the tissues so that the discomforts of parturition may be reduced to a minimum.

Walking
during
Pregnancy

While walking it is much better to step out at a fairly brisk pace. Fatigue comes much more quickly when one loiters along. The benefit derived from fifteen or twenty minutes of fairly rapid walking will be greater than from two or three times as much strolling. Toward the end of pregnancy it usually will not be



Touching the floor as far to the side and to the front as possible, first with one hand, then with the other, involves bending movements that are highly beneficial to the lower abdomen.

possible to walk briskly, though it will be more invigorating to put some energy into the walk than to creep along at a funeral pace as so many women do. More or less benefit will be derived from the walking no matter how it is done; but if a proper posture is taken and dragging is avoided both mother and child will profit from it.

Many women are self-conscious and ashamed of their pregnant condition and do not go out after it becomes noticeable. This attitude is a relic of a prudish belief in the uncleanness of all things sexual, and has done much to add to the dangers and discomforts of child-bearing. No greater hygienic mistake can be made than for a woman to confine herself within doors during pregnancy. Outdoor life is a necessity. Motherhood is something to be proud of, pregnancy a condition to be honored. Your duty to yourself and to your child demands that you spend as much time as possible out of doors. There should be not only regular walking, but a great deal of time should be spent sitting out of doors or perhaps pottering around in flower gardens and motoring in a safe manner.

Bending, stooping and stretching exercises, especially such as tend to develop the muscles of the back, shoulders and abdomen are also excellent. These will be of great value when sufficiently vigorous and frequent to maintain or improve the muscle tone and good general circulation; but the amount of energy one may use will depend upon the previous exercise habits, and of course, upon the stage of pregnancy. Forward and sideward bending, full-knee bending or squatting, body rotations, and stretching movements may be employed vigorously by the normally healthy woman who has been used to such exercises and has strong muscles and ligaments.

Women unaccustomed to exercise should begin carefully, making the movements less than complete and taking few movements at a time. Gradually the movements, their extent, number, and the energy put into them, may increase. During the first four or five months of pregnancy the exercises should be as energetically performed as is consistent with the general muscular condition and vitality.

If there is known to be a prolapsed condition of any abdominal or pelvic organ, stretching movements should be taken lightly, especially such movements as reaching far above the

head while standing. Such exercises are less likely to be harmful if they are taken reclining. Except when lightly done, backward bending, which is a stretching exercise for the abdomen, should usually be avoided during pregnancy; certainly in any case in which there are indications of miscarriage.

Deep breathing exercises are extremely helpful, as are also those movements which consist of momentarily contracting the abdominal muscles and raising the diaphragm high under the ribs. Alternating with the bearing-down impulse, the diaphragm and the abdomen should be drawn inward and upward vigorously. If these exercises are practiced a dozen times in succession three or four or more times a day, especially for the first four or five months of pregnancy, great benefit will result. They may be performed while standing, sitting or reclining and even while walking. In any deep breathing exercises one should avoid straining the lungs to the limit of their capacity; instead, the inhalation should be halted when the lungs have been comfortably filled and the breath should be let out gradually and freely without holding it. Bearing-down and diaphragm retractions should gradually become less energetic after the middle of pregnancy.

**Strenuous
Exercise in
Pregnancy**

One should avoid any exercises that tend to produce great muscle power, because rigidity, which may accompany power, may prove decidedly disadvantageous at childbirth. Athletic young women who have exercised as violently as possible both before and during pregnancy have sometimes produced results exactly opposite to those intended. The tissues had so strengthened and tightened up that they had lost normal elasticity and hence resisted childbirth.

The athletic woman should specialize in those movements that relax and stretch the pelvic structures and at the same time maintain a proper tone. Various leg movements taken while standing, sitting and reclining; squatting and extending the legs in different directions; squatting with the legs far apart sideward; squatting on one heel with the other foot far to the side, and also with one foot far in advance of the other—these are excellent exercises for the purpose. But if these muscles have been neglected the movements must be increased in number and severity very gradually or they may do more harm than good. Another type of exercise is merely

Useful Exercises in Pregnancy

swinging and "flapping" the legs and otherwise endeavoring to bring about as complete freedom from tension as possible.

During pregnancy, the woman who has not been athletic is not likely to become too strong, especially if she develops her exercising as gradually as she should. She will need to omit few activities, except horseback riding, hard rowing, bicycle riding and such violent exertions as gymnasium apparatus work, heavy lifting and sprinting runs. She should endeavor to develop as much strength as possible, provided the strength is general and not confined to certain groups of muscles.

The importance of maintaining a proper carriage of the body can not be overstressed. Many women have prolapsed abdominal and pelvic organs mainly because of a posture that favors the prolapsus; in fact, causes it. When the chest is sunken, the shoulders drooping, the spine curved backward and the abdomen pushed down and forward, all the abdominal organs become weak, their supports give way and the organs descend from their normal positions. If this condition exists before pregnancy unpleasant symptoms are likely to be pronounced.

In walking the proper posture is a slightly forward leaning of the entire body, the form being erect so far as the relation of trunk to lower extremities is concerned, the shoulders slightly back and relaxed, the chest prominent, the abdomen somewhat retracted, the head in a straight line with the spine. There should be no tensions. This means that the chest should not be forcibly held high nor the abdomen forcibly held in; neither should the shoulders be held tensely back nor elevated. Each step should be made as if it were to prevent a forward falling of the body. In standing and sitting the forward incline of the body should be dispensed with, the body being vertically erect with the same regard for relaxation and for the positions of the various parts as already mentioned.

Gravity Exercises

"Gravity exercises" are among the best for prolapsed organs. These are taken while lying on a support with the head end from twelve to twenty inches below the foot end. One may lie on the back and on the abdomen for different exercises. Some women use an ironing-board of suitable length and width for the support. The position itself is excellent and

should be taken several times daily for at least five minutes at a time, particularly after having been long on the feet.

The exercises consist chiefly of raising the knees and then the legs and performing various motions with the legs raised above the body. Lying face down on the support and raising and lowering the hips is an excellent exercise; walking on the hands and feet about the room is also good. Walking on the hands and knees is not so valuable, but it may be done at times. Assuming the knee-chest position (and then lowering the chest to the floor or mattress while kneeling down) is excellent and may be repeated several times daily. It should be done the last thing before sleeping, in this case simply slipping the knees back to comfortable sleeping position as the last movement before relaxing for sleep.

Valuable
Exercises for
Prolapsus

During the later months of pregnancy a marked sense of weight and bearing down in the lower abdomen frequently gives rise to much discomfort. The gravity movements just described are among the most effective for relieving this bearing-down sensation. Another simple movement is to recline on the back with the heels close to the hips (the knees flexed upward), then to raise and lower the hips repeatedly. The hips may also be held upward in this position by means of pillows or folded blankets.

Toward the termination of pregnancy the great increase in size of the uterus puts a pronounced tension upon the skin and the abdominal muscles. Frequently this is associated with more or less discomfort. This stretching also ruptures certain layers of the skin, leaving permanently small, white, transverse lines called *linea albicantes*. These may also result from obesity or tumor that stretches the skin. Massaging the abdomen every night with olive oil, or some other lubricant, will help maintain skin nutrition, increase the elasticity of the skin and abdominal muscles and thus prevent, to some extent, the development of these lines.

The daily cold sitz-bath will be of great use in maintaining or improving the tone of the skin and the muscles of the abdomen. The temperature and the duration of this bath will depend upon one's recuperative powers, but from one to four minutes will be long enough and the temperature, as a rule, will not need to be lower than sixty (perhaps sixty-five)

Sitz Bathing
in Pregnancy

degrees. The colder the water the shorter the duration of the bath. Always there should be quick recuperation to comfortable warmth. The cold sitz-bath likewise energizes all of the pelvic and abdominal parts of the body; but as it tends to produce a condition of tension in the tissues to be traversed by the baby at childbirth, it is best that the hot sitz-bath be substituted for it during the last month of pregnancy. The shallow, hot sitz-bath (not over six inches) will do as much good as the full sitz, though the cold sitz should be full depth.

Housework
in Pregnancy

Many women have the impression that housework is either inadequate exercise or drudgery. Well-balanced housework is an ideal, all-round exercise, involving walking, stooping, squatting, stretching, bending, rotating, rising on the toes and practically all other possible movements of the main groups of muscles. If housework is done *as* an exercise system, an attempt being made to use each class of work as a means to better health through proper muscular activity, it need not be drudgery and certainly will not lack the essentials of exercise. However, it is decidedly inadvisable for the pregnant woman to do housework steadily many hours daily without intervals of rest and without an opportunity to get out of doors. When possible the housework should be completed in the morning and the afternoon left free for rest, recreation, walking, relaxing in the open, motoring moderately on smooth roads, and other constitutional, health-building activities.

Frequent rest is necessary for the best health of the pregnant woman. In many cases there should be at least a half-hour rest in the late forenoon and an hour or two of rest in the early afternoon. If it is impossible for these rest periods to be taken, then several five-minute periods will be helpful. Except perhaps occasionally, every pregnant woman should be in bed by nine or ten o'clock, and should have eight or nine, never less than seven, hours of sleep a night.

Overwork produces an excess of fatigue poisons in the blood and thus becomes detrimental to the welfare of both mother and child. Early in pregnancy so many women feel so pronounced a reduction of energy and tire so easily that it appears as if Nature were demanding rest and relaxation. When lassitude appears, therefore, the pregnant woman should rest, being sure, however, that the condition is not the result

of toxemia from constipation or an excess of acid-forming foods. Such conditions will produce a physical lassitude that cannot be differentiated from one resulting from genuine fatigue or a protective reduction of energy.

The need for rest is often greatest during the first two or three months. This is the time when lassitude is usually most pronounced and when strenuous exertions may result in miscarriage. After the

Necessity of
Rest and
Sleep



Two movements for strengthening the pelvic region. Exercise illustrated in first photograph consists in bending over from upright position, bringing down arm to touch floor in front of the body with the left hand, while right arm is extended upward. After returning to standing position, the right hand is brought down to touch floor in same manner. Exercise may be continued using both arms alternately for a dozen times or more.

Exercise illustrated in second photograph is begun with clenched fists held to shoulders. As the right arm is extended upward the right knee is brought up smartly as high as possible. After returning to original position, same movement is performed with the left arm and left knee together. Entire exercise may be performed from a dozen to twenty times.

third or the fourth month, there may be more pronounced activities, so far as this danger is concerned. At no time should there be strenuous exertions, such as heavy lifting and sudden jars, particularly not early in pregnancy nor toward the end of the period. Late in pregnancy there is often a disturbing shortness of breath, due to the crowding of lungs and heart by the enlarged uterus. This condition also makes it inadvisable to undergo strenuous exertion.

**Avoid
Strenuous
Exertions**

One should be especially careful to avoid such jars as may occur in descending stairs. Abortion has been caused by such an apparently insignificant matter as slipping the heel off a pencil on the floor. A misstep anywhere may cause trouble. The pregnant woman must be on guard to avoid the stresses and strains that, at other times, would have no ill effect. Washing and wringing clothes by hand is perhaps the most important household work to be avoided.

As detrimental as overwork and strains may be, a much larger number of women are harmed by idleness than by too much activity. Just what governs the amount of "water" in the uterus is not certain, but it is likely to be much greater when the woman is idle than when she is normally active. When the amount is excessive, the abdomen is greatly distended and the entire body suffers in the attempt to support it, hence after childbirth there may remain serious weaknesses. A moderate amount of physical activity, therefore, is of great value.

Sometimes during the last two or three months of pregnancy conditions interfere with relaxation and sleep. Irritability of the bladder may be so pronounced that the woman is obliged to rise several times during the night. Usually, something can be done to relieve this condition, and frequently assuming the knee-chest position before sleep will relieve the pressure of the uterus upon the bladder and reduce the irritation. The hot, shallow sitz-bath before retiring also may help.

If a general nervousness causes sleeplessness it may be necessary to correct constipation, to reduce the diet in general, or omit meat or some other article of food, to reduce sexual relations, or to avoid them entirely. In some cases it may be necessary to reduce the amount of work done. Sometimes an organic condition may cause the nervousness and the loss

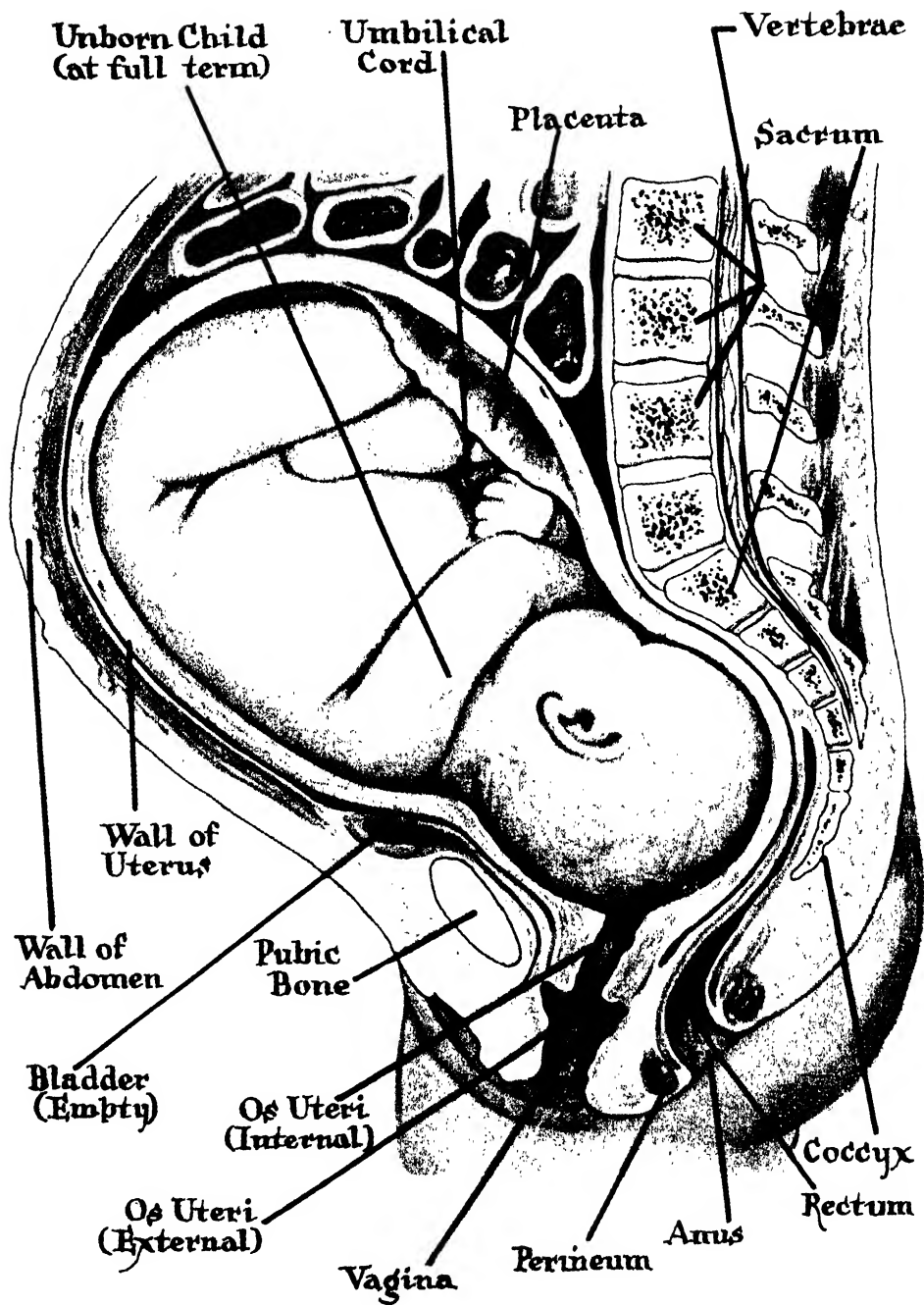


PLATE 50. Cross-sectional illustration of physical condition immediately before birth of child. The position of child and the proportion of size of child to mother present wide variations in different cases. This illustration is diagrammatic and not literal.

of sleep, so it may then be necessary to have an examination, especially of the kidneys and the heart—those organs most likely to be seriously disturbed by pregnancy.

Every possible effort should be made to secure sufficient sleep and rest. As a rule, the bedroom should be unheated, thoroughly ventilated, without strong drafts. The bed should be comfortable, a coil spring often being more conducive to proper relaxation than the lineal spring. The bed-covering should be warm, but light, and if possible the wife should occupy a bed by herself or have sole use of her bedroom.

BATHING DURING PREGNANCY.—Pregnancy is not a pathological condition; yet it is a condition in which Nature must be given every opportunity to meet the extraordinary demands made upon the body. There must be no artificial condition to hinder the adjustment of the body to the changes necessitated by pregnancy.

The skin, an important organ of elimination, is constantly influencing the internal organs by its condition. Therefore, it is an active and vital organ during pregnancy. As it must eliminate for both mother and child it must be kept in the best possible condition. During the later months of pregnancy an extraordinary amount of work is thrown upon the kidneys, so the vigorous action of the skin then becomes essential to general health. Pregnant women often perspire more freely than at other times. This indicates the increased action of the skin in the body's effort to maintain internal health. In any case the activity of the skin can be improved and its tone increased by water applications.

Proper bathing not only cleanses the skin but also favors the elimination of body wastes by stimulating the capillary circulation of the blood. Naturally, then, a pregnant woman should bathe daily; if she has a strong body odor she may bathe twice daily with benefit. A warm bath, with the liberal use of lather from a good grade of soap, should be taken three times a week, and in case of body odor the soap bath may be taken daily for as long as necessary. When the soap bath is taken less often than daily the bath may be merely a wet-towel rub, or a shower or short tub bath with plain water.

**Cold and Hot
Baths**

The temperature of the water should be just comfortably warm, preferably between 85 and 95 degrees. This is the best

for cleansing and will be neither overstimulating nor depressing. It is important that the bath water be rinsed from the body with sponge, cloth or brush dipped in clear water, though the best method, when possible, is to use spray or shower. After a warm rinse it will be beneficial to conclude the bath with a similar application of water at about seventy degrees.

Another excellent bath is the cool shower taken while the pregnant woman stands in several inches of warm or hot water. If she does not perspire appreciably during the period of pregnancy and if there is no acid odor, this cool shower may be taken daily, taking also one or two warm soap baths weekly. For those who are strong and vigorous especially for those accustomed to the cold bath there is no objection to a fairly cold shower or sponge bath practically daily. The cold tub bath, however, is too stimulating and should be avoided. The very hot bath or the prolonged warm or hot bath likewise should be avoided, being too enervating. Even though cold baths may have been used before pregnancy and during the first six or seven months, it usually is best that the temperature be modified toward the termination of pregnancy.

After the bath, regardless of its nature, the body should ordinarily receive a rub-down with a coarse towel. If a warm bath is taken at night, however, it may be necessary to avoid this, as it may prove so stimulating as to overcome the relaxing effect of the bath.

**The Dry
Friction Bath**

For those who have limited bath facilities and those who particularly enjoy the dry friction bath, thorough friction by means of a coarse towel, a flesh-brush or a bath-mitt may prove very beneficial. Whether or not a water bath be taken daily, it generally will be beneficial to take a daily friction bath.

Those who have been accustomed to surf or open-air bathing may continue it during the first half of pregnancy, if their general health is good, their reactive powers strong, the water not too cold, the bathing time short and free from violent exertions. Diving, prolonged or rapid swimming, or efforts to save oneself from heavy breakers, will often cause strain that may result in miscarriage.

COLON IRRIGATIONS.—Irrigations are particularly beneficial to the pregnant woman, who usually is decidedly consti-

pated. Accumulations of putrefying and fermenting waste products are highly harmful, as they have an irritating effect upon the bladder and tend to cause or aggravate varicose veins. From one to two quarts of warm water should be used in the colon irrigation. This internal bath, taken twice a week during pregnancy, will be beneficial. If the woman is emaciated, this irrigation may cleanse the bowel so thoroughly that she will be prevented from gaining weight. In such a case it would be better to correct the constipation by other means or to use only the small enema. Sometimes it is advisable to dissolve in the irrigation water a liberal amount of pure Castile soap, though as a rule nothing but the warm water will be necessary.

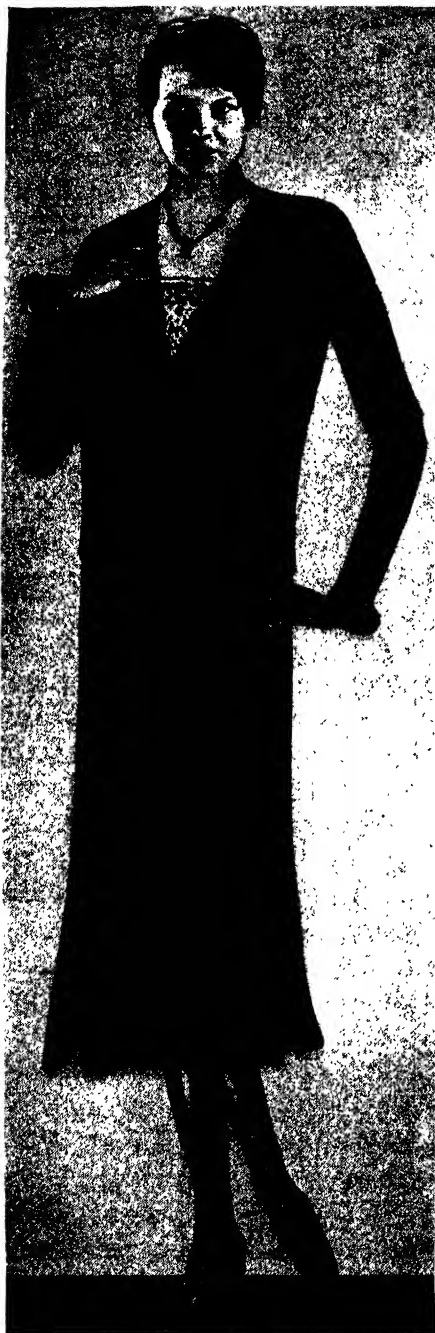
The enema or colon irrigation should be taken properly for best results. If the woman, in taking an enema, will lie on her back with the hips well elevated good results will be obtained. Usually, however, the best posture for the enema is the knee-chest position. This brings the pregnant uterus somewhat upward in the abdomen and helps smooth out the normal folds of the mucous membrane of the rectum and the sigmoid colon, thus permitting the water to flow freely until it passes the length of the descending colon and reaches the transverse colon. Here it usually will transverse the abdomen to the right side. This position reduces the likelihood or the severity of cramps or "gripping."

Use of the
Colon Tube

After the water has been injected it is best to lie on the back for a few moments, then to raise the hips while still lying on the back, then lie on the right side for another few moments. The abdomen may be lightly massaged upward from the lower left side, across the upper abdomen to the right side (immediately beneath the ribs), then down the right side to the appendix region. The water then may be expelled. However, if the knee-chest position is held for a few moments after injection and the abdomen drawn in several times, then the sitting position assumed and held for a short time before evacuation, the entire colon should be reached by the water and most of the waste material will be evacuated.

The ordinary enema outfit consists of either a rubber fountain-syringe bag and tube, or an enameled metal can with tube. Each terminates in a short hard-rubber enema tip. Often

Colon
Irrigation



The "circular" type of dress adapted to the use of prospective mothers, especially to broadshouldered types.

the water will reach the entire colon from this apparatus when taken according to directions given above. The colon-irrigation method calls for a special "colon tube," instead of the hard-rubber tip, this tube to be slowly injected as far as possible into the bowel after being well lubricated—vaseline being useful for this purpose. If the water is allowed to run slowly after the initial insertion, it will be found easier to insert the tube full length. Enemas or irrigations have a beneficial effect upon the kidneys also, through the absorption of some of the water from the bowel.

The drinking of one or two glasses of naturally cold water upon arising may also help in regulating the bowels. Two or more glasses of hot water (lemon juice may be added) will stimulate bowel action in certain especially stubborn cases. If the abdomen is gently massaged in the direction of the colon for five minutes after drinking the water, greater and more prompt effect usually will be secured. This water also will have a beneficial effect upon the kidneys. Another valuable aid to the kidney function is the drink-

ing of diluted citrous fruit juices between meals, though of course one should drink plentifully of plain water between meals also.

CLOTHING DURING PREGNANCY.—During the early months of pregnancy there will not, of course, be any indications for modification of ordinary clothing. But as many women are embarrassed by their changing figure later in pregnancy, the clothing may be modified to help them. Corsets, girdles, waistbands, strings or tight brassiers must be avoided at this time. The light elastic of bloomers may or may not be too constricting. Clothing should hang from the shoulders, not from the hips.

The underclothing should be of material that will absorb perspiration, and the outer clothing of the lightest weight consistent with warmth. Silk, linen and cotton under-garments are best for summer and light-weight woolens in colder months, preferably with linen next to the body. It is not advisable to coddle oneself, yet it is unwise to endeavor to "harden" the body at the risk of organic disturbance.

Under-garments on the order of "step-ins" or the ordinary union suit are desirable. Care should be taken in the selection of the garments to provide ample room for the enlargement of the body.

Many women wear corsets or tight girdles to make them less conspicuous. If the woman has been sufficiently strengthened by suitable physical activities and if she continues her activities so as to maintain good muscle tone and eats according to suggestions already given, she will not have a conspicuous figure before the seventh or eighth month of pregnancy. Anything that binds the abdomen is injurious to both mother and child; and no sensible woman will endanger the health of herself and her child merely for the sake of appearance.

Tight Clothing to Be Avoided

If a woman has been accustomed to wear a corset and has thereby weakened her muscles she should not at once discard the corset and all substitutes. The best plan is to loosen the corset gradually, at the same time taking body-bending and turning movements to strengthen the waist and the abdominal muscles. Before the enlargement becomes noticeable the muscles should be so developed that the corset can be discarded.

If there still is weakness, a corset-waist, buttoning down the front and lacing down the sides may be worn.

**Maternity
Gowns**

The outer garments need not be modified before the fifth month of pregnancy, sometimes not at all. There are maternity gowns that conceal much and do not cause constrictions. Kimonos, bath robes and negligees will be worn most of the time, as the woman will want to be as comfortable as possible while about the house. Whatever is worn should be of ample size. If properly designed it will conceal the woman's condition to the end of pregnancy. It is well to remember that any outer garment should be balanced at the top with a fairly large collar, to prevent the appearance of a rounded body, which may be pronounced if there is no collar.

Pregnancy places a strain upon the back, especially if there is unusual enlargement, so since high heels always throw a strain upon the back, the heels of the pregnant woman's shoes should be low. The lower the heels, the more nearly normal will the position be and the less will be the strain upon the back and the pelvis. The woman who has weak ankles should be especially careful to wear broad shoes with broad low heels. In some cases it might be better to wear full-height shoes rather than "oxfords" or pumps. It is important that she guard against falling, as even a slight fall may result more or less seriously. When around the house the woman may go barefoot or wear barefoot sandals, or soft slippers without heels or with only a low pad for a heel.

DENTAL CARE.—If there are any decayed teeth they are likely to decay more rapidly during pregnancy. At all times, such teeth are a serious menace to health. For this reason it is best that a woman see a dentist as soon as she discovers she is pregnant and have all needed dental repair work done. Formerly, it was believed that dental work, unless absolutely necessary, should be delayed until after the termination of pregnancy, as it was thought miscarriage was likely to be caused by the pain, nervousness and shock of dental work. Shock, of course, should be avoided, but otherwise no dental work need be delayed because of pregnancy.

The usual daily care of the teeth should be scrupulously observed during pregnancy. No special care, however, is necessary. That is, at all times the teeth should receive their

at least twice-daily brushing. Especially should the teeth be cleansed and all particles of food lodged between them removed before retiring.

Pyorrhea and gum inflammations should receive dental care, though often treatment by the woman herself will bring about a healthful condition. It may be necessary to reduce proteins and sugars, correct constipation and drink more water. Brushing teeth and gums with a fairly stiff-bristled brush, on which is placed a little salt or a few drops of lemon juice, will often help. Giving teeth and gums some real work to do, by chewing whole grain wheat, hard and dry toast, stale bread or raw cabbage or lettuce, will help many of these cases. Biting on heavy rubber bands and carefully pulling on the rubber, or biting on a cloth and pulling on this, will strengthen teeth and gums. Massaging the gums with the fingers, sprinkled with salt, will help.

THE HAIR AND SCALP.

—Frequently the hair becomes dry, brittle and lusterless during pregnancy.



Care of the
Hair in
Pregnancy

The straight-line garment, with bloused waist, is well adapted to the needs of the prospective mother.

Shampooing
in Pregnancy

So more than usual care must be taken of it and the scalp. Brushing is important, being second only to shampooing. It will bring more blood to the scalp and thus provide more nutrition for the hair follicles. The hair should be brushed at least once, preferably twice, a day. The amount and force of the brushing will depend upon the tenderness of the scalp, but vigorous brushing is not necessary. If there is dandruff a fairly stiff brush may be used to brush it out of the hair.

The health of scalp and hair roots and the strength of the hair is greatly encouraged by pulling. For this treatment it is necessary only to run the separated fingers through the hair near the scalp, then close the fingers upon the hair and pull; or the hair may be grasped in bunches and pulled, though in this way the pulling is not likely to be uniform. Scalp massage is not necessary if there is proper and regular brushing.

Both hair and scalp need frequent washing. Once every week or ten days is often enough unless the hair is exceptionally oily. In that case a shampoo every four or five days, with a change in diet to reduce fats and rich foods, may be advisable. Overfrequent shampooing will result in brittle hair and a dry scalp. Avoid shampoos having much alkali, for such will remove the natural oil from hair and scalp and make the hair harsh and uncontrollable. An excellent shampoo is made by boiling Castile soap shavings in water till a jelly forms. The yolk of an egg added may make the jelly more beneficial.

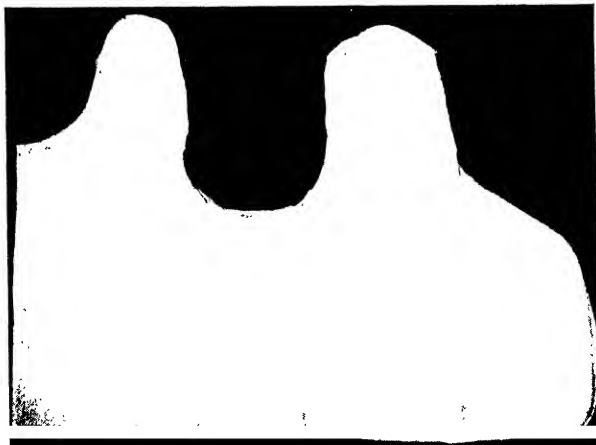
Use only a little water, add the shampoo slowly and thoroughly work it into the scalp. Warm water should be used for washing and rinsing, though the final rinsing should be done with naturally cold water, provided there is no scalp neuralgia or rheumatism.

If one has a hair dryer or can expose the head to a fair breeze that is not too cool the hair may be dried quickly while the fingers are being run through it to keep it fluffed up. The last of the drying, when possible, should be in the sunshine. If the hair seems naturally very dry, or if it is excessively dried by the shampoo, a small amount of olive oil or vaseline may be rubbed into the hair roots and the scalp. But nothing will restore natural oiliness more quickly than brushing and pulling. Details on hair care are given in Volume V.

CARE OF BREASTS AND NIPPLES.—Nature, as a rule, takes care of the breasts and nipples of the prospective mother. However, after delivery, some women find that breast condition and milk production are not normal. In any case, nothing need be done before the sixth month, though of course the breasts should be free from compression. If a properly qualified person considers it inadvisable, a woman should not nurse her child. If the breasts must be bound, snug compression may be applied to reduce the circulation and check development of the glands. Massage of the glands, unless indicated by some abnormality, will do little good unless it is correctly done. The proper procedure is as follows:

Cover the breast for two or three minutes with a towel dripping with cool water; then take a position on all fours, which allows the breasts to be suspended, and gently stroke them for five minutes from the base to the nipple. Use only the fingers for this stroking. Repeat the manipulation daily after five or six months of pregnancy, but avoid deep pressure and stimulation of the nipple. After the massage the nipple may be rubbed with a little olive oil. If the breast seems to be developing properly, especially if there have been previous pregnancies in which it functioned satisfactorily, this manipulation will not be necessary.

A good way to prevent nipples from cracking and to keep their surface smooth and supple is to wash them with Castile soap and warm water each night during the last few weeks of pregnancy; then, after careful drying, to draw out the nipple with the thumb and fore-finger and anoint with sterile lanolin,



Binding of the breast before or after childbirth is occasionally to be recommended. The type of binder here shown is adapted to cases in which binding seems positively indicated.

the hands first having been washed clean with soap and (preferably running) water. In the morning the nipple may be bathed with boroglyceride solution, one ounce to seven of sterile water. This solution can be secured from any druggist.

If the nipples are flat or inverted they may be drawn out with thumb and finger and gently massaged daily after the middle of pregnancy. A small cupping glass or breast-pump may be used lightly for a few minutes on the drawn-out nipple.

Regular
Urinalyses
Advisable

URINE EXAMINATION.—From the beginning of pregnancy there should be regular examination of the urine. For the first six months monthly urinalyses should be made, and weekly for the remainder of the time. The examination should not be merely for sugar and albumen, but a general chemical and microscopic examination should be made. In case of albuminuria, kidney insufficiency, nephritis, edema or dropsical swelling, or symptoms of toxemia, it would be better to have daily urinalyses. If the daily amount of urine should fall to less than sixty ounces (nearly four pints) considerable plain water should be drunk. If any of the above conditions develop careful dieting will be necessary. Proteins should be reduced, fruits, vegetables, milk and water increased, the bowels relieved more often, and the skin stimulated.

BLOOD-PRESSURE.—Usually the blood-pressure of the pregnant woman rises to 130 millimeters or slightly above in the early months of pregnancy. It is decidedly increased in the later months and when labor begins. If it rises to 150 millimeters or above and remains there, it indicates toxemia, so immediate measures must be taken to reduce it. Diastolic blood-pressure (Volume VII,) indicates the heart condition.

Douching
during
Pregnancy

VAGINAL DOUCHES.—The regular douche is considered to be a toilet necessity by many women, so they continue to use it throughout pregnancy. Usually this is not necessary for antiseptic purposes. Overuse of the vaginal douche is always inadvisable. The general soap baths for cleanliness, as previously suggested, will be sufficient in most cases to maintain satisfactory cleanliness if, during the general bath, the local external parts are regularly bathed. The cold sitz-bath sometimes will give relief in case of smarting or itching due to leucorrheal discharge or other local condition; it is also excellent to reduce congestion or tendency to hemorrhoids.

In case of an irritating leucorrheal discharge, resulting from a chronic inflammation of the mucous membrane of the cervix (endocervicitis), the hot sitz or hot compresses will be better, or a cleansing alkaline douche may be used each night and morning. An ounce of borax and an ounce of baking soda to a quart of water, at a temperature of 100 degrees Fahrenheit, is a satisfactory relieving douche. The water should have been boiled and cooled to the proper temperature. It is best that the patient be in the reclining position during the douche and the reservoir containing the solution only a few inches above the vaginal orifice, otherwise there is the possibility of the douche provoking abortion.

CONDITIONS DEMANDING A PHYSICIAN.—When any of the following symptoms develop the pregnant woman should secure the advice of her physician without delay: scanty urine, or reduction to below 50 ounces a day; losses of blood from the vagina, regardless of how slight the loss; swellings (edema) about the face or the feet; persistence of constipation regardless of treatment that should be corrective; disturbance of vision; persistent frontal headache.

SHOULD PREGNANT WOMEN TRAVEL?—Some women seem to resist all ordinary and extraordinary influences that might bring on abortion, miscarriage or premature labor. Others are not so fortunate. Occasionally a woman gives birth to her baby in some public conveyance or under other very embarrassing conditions, as a result of the influence of more or less jarring motion upon the uterine muscles, causing the uterus to contract and expel its contents.

During the early weeks of pregnancy the ovum may be insecurely attached to the uterine membrane and various motions may cause its separation, with the production of miscarriage. In the last month of pregnancy the uterine muscle fibres have become irritable, and premature labor may be brought on by the motion of a conveyance (trolley, motor-car, railway train, ship). As a rule there is less danger between the eighteenth and thirty-second weeks of pregnancy than at any other time, though at any time during the entire period it is inadvisable for a pregnant woman to take an extended or a rough trip at the time when the menstrual period would ordinarily be expected.

Cautions in
Regard to
Traveling

Naturally, the woman's strength and general health, the condition of her reproductive apparatus before pregnancy, her frame of mind (whether sad and grieved or gay and care-free), the length of the journey and the manner in which the journey is to be made, are factors of importance. Long automobile trips are among the most likely of all forms of travel to cause miscarriage, though an ocean voyage in which nausea and vomiting occur may have the same results.

Proper asepsis and proper attention from a competent physician or obstetrician are matters of vital importance both to mother and to child. For the best interest of the child the mother should be careful to insure that her accouchement may take place in her own home or in a hospital previously selected for this purpose. She should keep in mind not only the probable date of her confinement (which she should determine or have determined by her physician as early in pregnancy as possible), but also the fact that the last month particularly is the one in which some measure of caution is to be observed. Hence, when possible, she should remain in the vicinity of her own home during the final month.

Computing
the Birth
Date

WHEN MAY THE CHILD BE EXPECTED?—The exact date of delivery cannot be stated, even though the woman may think she knows the exact date of conception. The average interval between the first day of the last menstruation and childbirth is 280 days (ten lunar months), while the interval between resultful coitus and labor is approximately 273 days. However, this rule is not infallible, as occasionally a normal pregnancy may fall as low as 240 days or rise to 300 days or more, the pregnancy, birth and child being in no way different from those of so-called normal pregnancy (280 days or thereabouts).

While no definite means has been suggested for determining the exact date of termination of an individual pregnancy, "Naegele's rule" is the one most widely used, and the one from which the table appended below is devised. In this method one counts forward nine calendar months from the first day of the last menstruation and then adds seven days, thus approximating 280 days from the beginning of the last menstruation.

Confinement may antedate or run over the schedule, but the dates of birth given will be approximately correct in the



PHOTOGRAPH EWING GALLOWAY

PLATE 51. A gypsy mother and her sturdy offspring in camp in Northwestern America.

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CALCULATING BIRTH DATE 1637

majority of cases. Naturally there will be considerable variation in extreme cases: in which conception took place soon after the last period; and those in which conception took place just before the period missed; yet the date of delivery is the same.

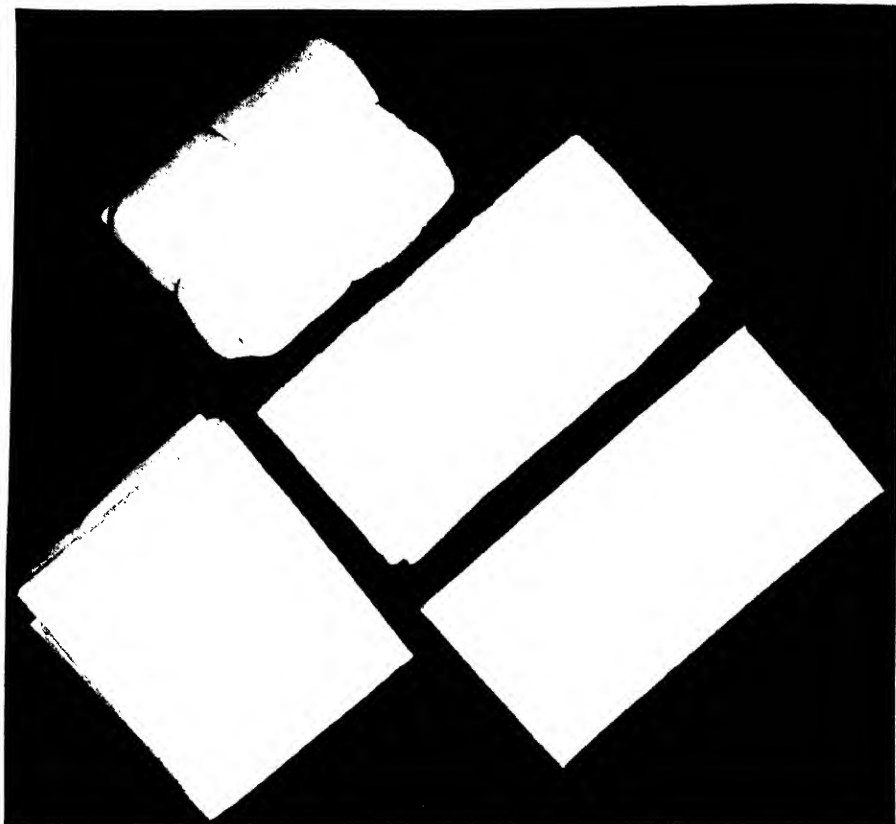
DURATION OF PREGNANCY

| Commencement of last menstruation | | Date of birth | | Commencement of last menstruation | | Date of birth | |
|-----------------------------------|----|---------------|----|-----------------------------------|----|---------------|----|
| January | 1 | October | 8 | July | 6 | April | 12 |
| | 7 | | 14 | | 12 | | 18 |
| | 13 | | 20 | | 18 | | 24 |
| | 19 | | 26 | | 24 | | 30 |
| | 25 | November | 1 | August | 30 | May | 6 |
| February | 31 | | 7 | | 5 | | 12 |
| | 6 | December | 13 | | 11 | June | 18 |
| | 12 | | 19 | | 17 | | 24 |
| | 18 | | 25 | | 23 | | 30 |
| | 24 | | 1 | | 29 | | 5 |
| March | 2 | | 7 | September | 4 | July | 11 |
| | 8 | January | 13 | | 10 | | 17 |
| | 14 | | 19 | | 16 | | 23 |
| | 20 | | 25 | | 22 | | 29 |
| | 26 | | 31 | | 28 | | 5 |
| April | 1 | | 6 | October | 4 | August | 11 |
| | 7 | | 12 | | 10 | | 17 |
| | 13 | | 18 | | 16 | | 23 |
| | 19 | | 24 | | 22 | | 29 |
| | 25 | | 30 | | 28 | | 4 |
| May | 1 | February | 5 | November | 3 | | 10 |
| | 7 | | 11 | | 9 | | 16 |
| | 13 | | 17 | | 15 | | 22 |
| | 19 | | 23 | | 21 | | 28 |
| | 25 | March | 1 | | 27 | September | 3 |
| June | 31 | | 7 | December | 3 | | 9 |
| | 6 | | 13 | | 9 | | 15 |
| | 12 | April | 19 | | 15 | | 21 |
| | 18 | | 25 | | 21 | October | 27 |
| | 24 | | 31 | | 27 | | 3 |
| | 30 | | 6 | | | | |

Note: When the month of February is not part of the period, only five instead of seven days are to be added to the nine months.

ABORTION, MISCARRIAGE AND PREMATURE LABOR.—The term *abortion* is applied to the loss of a fertilized ovum during

Premature Births



The equipment for the maternity cot or bed includes a muslin bed sheet, receiving blanket, rubber sheet and delivery pad.

Premature Labor

the first three months of gestation. *Miscarriage* is the expulsion of the product of conception during the fourth, fifth or sixth month of pregnancy. *Premature labor* is the delivery of a viable (livable) fetus after the beginning of the seventh month and before full term. Miscarriage is the term used by the profession to the laity for any interruption of pregnancy before the fetus is viable. Often the term is used by physicians interchangeably with abortion.

Twenty-five per cent. of all pregnancies are estimated by some authorities to terminate in abortion; others consider this estimate small. Because of the tendency toward pelvic congestion at what should have been menstrual time, the ovum is less stably attached and abortion most frequently occurs near the end of the menstrual month. The majority of abortions

take place during the second month, much less frequently after the third month, the ovum being by this time more securely imbedded in the uterine decidua than during the previous period.

The ovum is attached much less securely in the uterus of some women than in others, and in one pregnancy more securely than in another in the same woman; also, what will bring on abortion in one woman or in one pregnancy will not produce the same effect in another case. But the chief causes of abortion may be considered as:

First, those conditions which cause the death of the fetus. Abortion
These causes, which interfere with the circulation between the uterus and the placenta, consist of fetal malformations, mechanical injury or violence, disease, severe maternal toxemia or anemia, or pathological conditions of local internal structures concerned directly with the fetus (amnion, cord, decidua, etc.).

Second, those conditions which cause active uterine contractions and thus bring about expulsion of the fetus whether or not it is dead. Among these are atrophy or hypertrophy of the uterine lining; displacement of the placenta, in which the placenta is low in the uterus (placenta previa); some drug agent which hastens the delivery; reflex irritation of the uterus from stimulation of the breast or the rectum; chorea; severe convulsions; pelvic adhesions which cause uterine displacement; tumor of the uterus; poisoning by carbon dioxide; over-distended uterus, as by multiple pregnancy or excessive liquor amnii; injury, as by falls and jars and blows; violent exertions; some organic disease (of heart, lungs, liver) that produces a chronic pelvic congestion; sexual excesses, especially near the menstrual period. At least 70 per cent. of abortions result from endometritis or inflammation of the uterine lining. Other frequent causes of repeated abortions are syphilis; backward displacements; irritable uterus; chronic kidney disease; fatty degeneration of the placenta; injuries from a fall producing uterine contractions or partial tearing of the placenta or loosening from the uterine wall, causing hemorrhage; displacement of the uterus, thus preventing the proper growth and development of the same by decreasing its normal lumen, or caliber, and the occurrence of chills.

The chief symptoms of an abortion are a severe pain in

the abdomen, pelvic tenesmus or spasms, painful uterine contractions and a greater or less degree of hemorrhage. The pain may be similar to that of labor or it may be simply a severe backache and tenesmus. The blood usually appears in clots and may contain portions of the embryo, or the embryo may be expelled intact. When this occurs hemorrhage and pain usually cease and the woman makes a rapid recovery. There may be associated nausea and vomiting, also some chilliness and temperature elevation.

**Treatment
after
Abortion**

Many deaths result from abortion mismanagement. Hemorrhage and sepsis are the greatest sources of danger. The hemorrhage, however, is rarely sufficient to endanger the life of the woman, though it may be sufficient to lower her vitality and resistance. When parts of the placenta or of the impregnated ovum are left in the uterus to undergo decomposition there may be grave danger to the woman's life, for this makes an excellent culture medium for disease-producing bacteria, and their products with those of the decomposition will be absorbed, with serious results. Even if this does not cause death it may produce a general pelvic infection and make the woman an invalid for many years or perhaps for life.

To prevent abortion, the pregnant woman should avoid all excitement and such physical exercises or activities as cause sudden jolts and jars or which increase intra-abdominal pressure, as in lifting or moving heavy objects, especially in cases of irritable uterus. If there are any of the pathological conditions listed above as causes of abortion they should be treated before conception, for the treatment is then more likely to be successful.

It is rarely possible by treatment to save the ovum after impregnation if the condition is such as to cause abortion. If there is an irritable uterus, sexual intercourse should be avoided, especially near the normal menstruation times. At these periods, it often would be better for the woman to remain in bed for a few days and relieve the pelvic congestion by neutral enemas and gravity postures (hips higher than the shoulders).

Some cases of backward displacement of the uterus when not helped by gravity exercises and postures may be relieved by a pessary, or preferably a tampon, applied by a physician.

Such appliances may be worn until the fourth month of pregnancy, at which time the uterus rises out of the pelvis and naturally will be supported without assistance. If possible, the woman with chronic kidney disease should avoid pregnancy, for this state aggravates the disease. She should at any rate conserve the kidneys by following as closely as possible a strict physical culture mode of life with, perhaps, several courses of milk diet.

In case of threatened abortion or miscarriage the woman should seek complete rest in bed at once. In an occasional case a cold sitz-bath of three to five minutes' duration is taken when the first symptom of abortion appears, but the bath will be of no value

unless taken at the very first indication of any trouble.

If abortion is actual or inevitable it may hasten expulsion of the embryo for the woman to be up and about; but this "treatment" would be highly inadvisable unless there were a decidedly slight hemorrhage. If the bleeding is protracted or severe surgical treatment by curettage may be necessary. If infection is present curettage may be dangerous, as it will open



Threatened
Abortion

A hot-water bag with syringe attachments, including both sterilized glass and hard-rubber nozzles. An eye-dropper for use in the baby's eyes is also shown.

fresh routes for absorption of infectious material. Until recent years it was generally recommended that all cases of abortion be surgically treated by curettement. If the uterus can be emptied *before* infection takes place this should be done; to do so *after* infection has begun is dangerous and equivalent to malpractice. Curettement with a dull curette which will not make the interior of the uterus raw may be necessary in order to remove any pieces of retained placenta, which may not be loose and which if allowed to remain might cause infection.

It is gratifying to know, however, that medical men, with the highest reputations, are coming to realize that quite frequently Nature is capable of dealing with highly complicated problems and, if not too greatly meddled with, she usually may be depended upon to correct conditions that ordinarily might be considered sufficiently grave to warrant active interference.

**Douches for
the Uterus**

When infection has taken place the best treatment is vaginal irrigations or douches, or preferably when possible hot intra-uterine douches. The more severe the symptoms the more frequent the douches, up to every three hours. Two quarts of plain boiled water should be used; if this does not seem sufficient to remove the waste matter, three or four quarts may be used with safety. The aim should be to lower and keep down temperature. If the fever is high, the water temperature should be low; if fever is low, the water temperature may be quite high. The douches should be repeated often enough to allay local pain and keep the temperature within safe limits. They may be reduced in frequency to once or twice a day after the body temperature has been normal for a couple of days. The patient should be given no food whatever until the condition is well under control. There should be complete rest, an abundance of fresh air but no chilling, and the feet must be kept warm. Copious drinking of plain water at natural temperature is advisable.

After the patient requires no further treatment she should remain in bed for a week or ten days, with the head end of the bed elevated a few inches so as to encourage drainage and diminish danger of post-abortion infection. The external genitals should be kept thoroughly clean, but no vaginal douches or irrigations will be necessary. The uterus may be aided in

its return to the pre-pregnant state by a cold (never ice-cold) application applied for fifteen to thirty minutes twice a day, to the lower abdomen. It will be advisable to have the pulse and temperature, also the nature of the genital discharge, observed for a few days so as to detect instantly any tendency to infection. This will be indicated by rapid increase in pulse, elevation of temperature, and usually by putrid odor from the discharges. It is considered as important for the woman to be under careful observation after abortion as it is after normal labor.

Premature labor results from essentially the same causes as produce abortion. It is thought by some authorities to occur in a great many pregnancies; even when a delivery is considered to be at full term it often may be somewhat premature. The fetus being attached insecurely during the last couple of weeks of pregnancy, little stimulation is required to bring on labor ahead of full term. The course and management of premature labor are the same as those of full-term labor.

If the child is alive, there is nothing to do in over-term pregnancy but await labor. The longer the pregnancy runs over normal term the heavier the child becomes, there being, according to some obstetricians, a definite ratio between the length of gestation and the increase in the child's size. Pregnancy is not likely to continue so long beyond normal time as to make delivery appreciably more difficult. When labor does come it requires the same management as full-term labor.

EXTRA-UTERINE PREGNANCIES.—Pregnancy occurring outside the uterine cavity is called "extra-uterine," or *ectopic* gestation. It has been estimated that once in 1,200 pregnancies ectopic gestation occurs. In most of these cases, the impregnated ovum is arrested in its progress through the Fallopian tube, and so the development takes place there. In rare instances the ovum becomes impregnated while still in the ovary, and develops there. In still other cases, the ovum either reaches the peritoneal cavity after impregnation or is impregnated by the spermatozoon after it reaches this cavity, where it develops. The last is very rare.

Impregna-
tion Outside
the Uterus

The cause of ectopic pregnancy is not known; but whatever delays the transit of the ovum after impregnation through

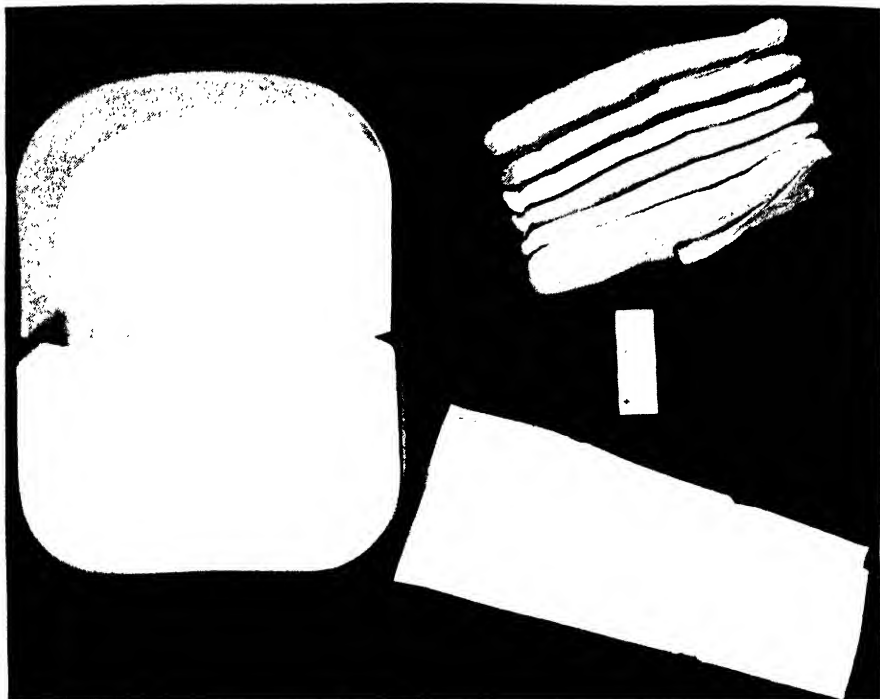
the tube naturally permits the ovum time to develop, and it finally reaches such size that it can no longer traverse the small tubal canal. Chronic inflammation, congenital defects in the tube, tubal stricture and adhesions of the peritoneum that close the tubal canal are among causative conditions, chronic inflammation heading the list.

There are numerous possibilities of termination of extra-uterine gestation. Nothing unusual will occur during the first few weeks. There may be nausea, vomiting and cessation of menses, and all the other early symptoms of ordinary pregnancy. The ovum will proceed in its development until about the end of the second or the beginning of the third month. At that time the woman usually experiences sharp shooting or drawing pains in the abdomen and lower extremities, though these may be absent. Then there may be one of the following changes: The ovum may die early and become absorbed; or it may terminate in what is called a tubal mole; it may end in tubal abortion which ruptures into the peritoneal cavity; or a pus tube may form. After rupturing into one of the supporting uterine ligaments (the broad ligament), it may undergo one of various changes: an ovarian cyst may result from ovarian pregnancy; there may be such severe hemorrhage and shock from its rupture as to cause death.

The diagnosis of ectopic pregnancy is not easy. It must be differentiated from uterine pregnancy, uterine abortion, ovarian cyst, dysmenorrhea, pus tube and hemorrhage into the tube. In case the ovum bursts, the internal hemorrhage may cause severe abdominal pain and collapse. If uncontrolled it will cause death within a few hours in two-thirds of the cases, while most of the others will suffer from resulting disease. Yet when the abortion is early many of these cases recover without any surgical interference. When the condition is diagnosed before rupture takes place it should be terminated surgically, for, except when in the tube, the body has no way to rid itself of the foreign mass. The case can never continue to normal full-term development.

Twins and
Triplets

MULTIPLE FETATION.—By this term is meant the bearing of two or more fetuses at the same time—twins, triplets, quadruplets. It also is called multiple pregnancy. Twins or twin fetation occur on an average once in one hundred pregnan-



Equipment of the maternity chamber, including douche pan, abdominal binder, gauze pads and umbilical dressing.

cies; triplets once in 7,900; quadruplets once in 371,000. Even quintuplet (five) and sextuplet (six) pregnancies are on record. Usually in multiple pregnancies the fetuses are smaller than normal, their development is not equal, they are more difficult to deliver, and monstrosities are more frequent; also there is likelihood that one fetus may die or that both may die, though at different periods in the pregnancy.

The exact conditions that favor multiple pregnancy are not known. Some women have several multiple pregnancies, others never have them even though they may have many pregnancies. If a single ovum containing two or more germinal vesicles is impregnated multiple pregnancy will result and all the children developed from this ovum will be of the same sex, and will closely resemble each other. These are "true" twins. Two or more ova from one Graffian follicle, or from separate follicles from the same ovary or from different ovaries, may be impregnated at the same time, in which case the resulting children may be of one sex or both sexes, and the children may

**Causes of
Multiple
Pregnancies**

or may not look alike. When one ovum has been impregnated there is but one placenta, but when two or more ova have been impregnated there will be a separate placenta for each one of them.

The birth of twins is classed by many as among the irregularities of labor. There is no legitimate reason for this classification, for the birth of twins, or of the product of any other multiple pregnancy, merely presupposes that two or more ripe ova have come down at the same time and all have been impregnated, or an ovum with multiple nuclei has been impregnated. Rarely, however, the twins are interlocked. These may be disengaged by combined internal and external manipulation with the aid of anesthesia and special position of the mother; otherwise the first child will usually need to be forfeited for the sake of the second.

Super-fecundation is the impregnation of two or more ova liberated at the same ovulation but by successive acts of coitus; the impregnation may be by the same male or by different males. *Super-fetation* is the presence of two fetuses of different ages (not twins) in the uterus, resulting from the impregnation of two ova liberated at successive periods of ovulation. It is considered by some authorities that there is no such condition, and that what appears to be such is merely a twin pregnancy in which one fetus became blighted and the other survives and develops to full term.

The management of twins at birth is the same, essentially, as in ordinary labor. Naturally, possibilities for complications in both pregnancy and labor are multiplied, there being greater likelihood of toxemias and heart affections, hemorrhages after delivery, and sepsis; operative or instrumental delivery is necessary in a larger percentage of multiple pregnancies than in single pregnancies. But Nature usually delivers both the first and second child normally. The dangers are somewhat increased in multiple pregnancies but the greater proportion of mothers deliver without serious complications. In fact, the smaller heads and lighter weight of the fetuses facilitate delivery when there are no complications.

Derange-
ments of
Pregnancy

DISORDERS OF PREGNANCY.—Pernicious vomiting of pregnancy occurs frequently enough to merit attention—about once in 300 pregnancies. High-tensioned American women

are more subject to it than English and German women. It may be of neurotic, toxemic or reflex type, though even in the neurotic and reflex types there is a predisposing toxemic element. The reflex type may be due to some pelvic disorder, such as uterine displacement, adhesions which retain the uterus within the pelvis instead of permitting it to rise into the abdominal cavity, inflammation of the membrane where the ovum is attached, ovarian cyst, multiple pregnancy, or excessive hydramniotic fluid, etc. Abnormal condition of liver functioning, in which nitrogen is not successfully prepared for elimination of its waste products, is considered to be the main cause, there being a protein sensitization to products of the new organ, the placenta. There may occur in the liver decided degenerative changes, including multiple minute hemorrhages, due to the toxemia; and there also may result destructive changes in the kidneys. The neurotic cases usually respond well to treatment, as do also the reflex cases when the causative condition is corrected. Toxemic cases are the most grave, for the damage done to the liver may remain even if pregnancy is prematurely terminated.

In the neurotic type, the woman should be put to bed for several days, elimination improved and the diet modified. Fruit diet is excellent but liquid foods also may be given. Vichy or lime-water added to milk in small quantities may be tolerated. Sexual intercourse *must* be avoided. Packing the vagina to relieve a displacement of the uterus, or the use of a pessary for the same purpose, may give relief. In some cases there is greater relief with the head and shoulders slightly elevated, though usually greater relief will be afforded when the hips are elevated and the head and shoulders are low. Sometimes an ice-bag placed at the back of the neck will be beneficial.

Dietetic
Suggestions

The hot and cold trunk pack is excellent for this disorder. A cloth girdle is prepared (See *Girdle* or *Abdominal Pack*, Volume VI); but before the cold wet girdle pack is applied a hot-water bottle partially filled with as hot water as the patient can bear is placed immediately upon the epigastrium (extreme upper abdomen), perhaps over a dry cloth, which then is covered completely with the dry flannel girdle. This may be kept on for half an hour and renewed, but as a rule half an

hour will be sufficient at a time, repeated during the day. However, sometimes the pack may be applied half an hour before each meal and kept on for a total of two hours each time, the hot-water bottle being renewed once or twice. Instead of the hot-water bottle a coil of tubing may be placed upon the upper abdomen, one end being attached to a hanging reservoir and the other leading to a suitable vessel at the side of the couch. The reservoir may be filled and refilled with as hot water as the patient is able to endure, during the progress of the pack.

After all other measures have been tried and abortion deemed imperative, organotherapy has beneficially resulted in numerous cases of pernicious vomiting, or in extreme vomiting of pregnancy. Prepared placental substance appears to establish an artificial immunity to those placental proteins which seem to be responsible for the vomiting in over-sensitive women. This therapy must be prescribed by a physician, but it offers the possibility of such excellent results that a pregnant woman should refuse abortion, unless immediately urgent, until this therapy has been given a trial.

In ordinary cases of nausea and vomiting the largest meal of the day should be taken at noon, with a lighter meal of fruits or vegetables or both in the evening. Sometimes a meal of acid fruits or their juices at night will have an excellent effect. Before rising any other food that requires moderate mastication may prevent the nausea. Whole-wheat bread, or crackers, and fruits requiring mastication (used without sweetening) may prove helpful, when palatable. The knee-chest position often gives relief through permitting the uterus to ascend in the abdomen, relieving tension and pressure in the pelvis. The woman will need to determine for herself whether a glass or two of hot, cool or cold water immediately upon rising will assist in controlling the nausea.

Hemor-
rhoids during
Pregnancy

HEMORRHOIDS.—Occasionally a pregnant woman will develop hemorrhoids, and not infrequently one who is subject to them will find them aggravated during pregnancy. Since the gravid uterus exerts pressure upon the pelvic structures it may seem strange that all pregnant women do not develop piles and varicosities of veins. But, indeed, a surprisingly small number of pregnant women develop hemorrhoids. Hem-

orrhoids that develop only during pregnancy usually disappear shortly after delivery.

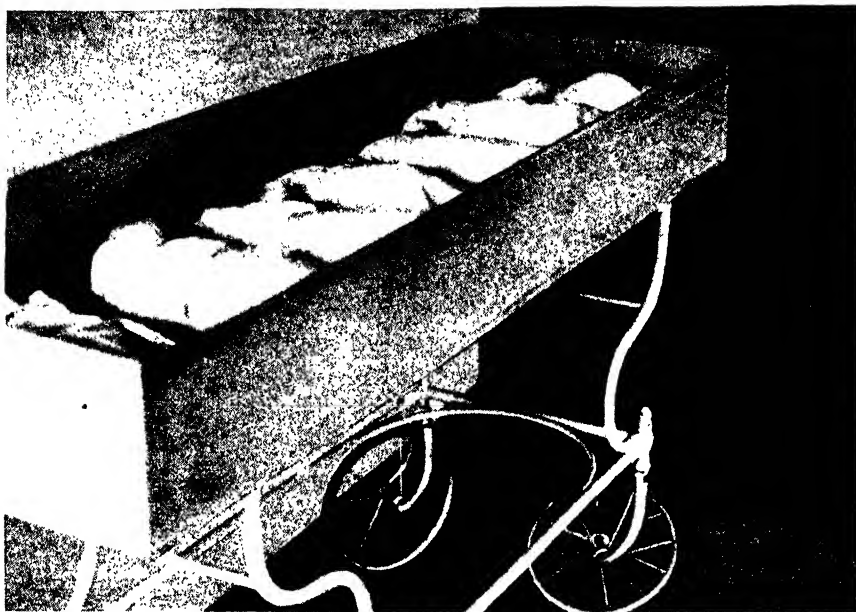
To escape hemorrhoids it is necessary to prevent the undue stress upon the hemorrhoidal veins and the mucous membrane of the lower bowel. This is occasioned by constipation. An accumulation of fecal matter in the lower bowel causes irritation and distention of the veins and in time leads to piles. To prevent constipation, and perhaps hemorrhoids, a proper balance of fruits and vegetables is advisable. If an abundance of vegetables, fruits and water are taken, along with proper physical activity, probably all trouble will be avoided. If not, a mineral oil may supplement them.

If the hemorrhoids protrude or bleed, irritation, swelling and inflammation may be reduced by a hot compress, repeated several times daily, continued each time as long as necessary for relief. In some cases the cold compress applied directly to the hemorrhoids will be better. Sterile gauze should be used. Alternate hot and cold compresses may be used, but usually the application of hot compresses until relief has been secured, followed by the cold compress, will give the most lasting results. The shallow hot or cold sitz-bath may be used instead of the compresses in case there is no tendency to abortion or miscarriage.

REFERRED PAINS FROM GRAVID UTERUS.—The pregnant uterus pressing upon nerves often causes considerable pain. This may be localized in the area of the nerve pressed upon, in the spine whence the nerves arise, or in the area where the nerves end. This is why pain, numbness and annoying tingling sensations often are felt in the leg or in the foot, far from the actual seat of the trouble. Obviously these troubles are difficult to relieve until the pressure of the uterus ceases at childbirth. The knee-chest position, sleeping or reclining with the feet at the upper end of an inclined support, and preventing constipation may bring considerable relief.

BEARING-DOWN PAINS.—Often during pregnancy, there are bearing-down pains, usually accompanied by a sense of weight. If they are not relieved by the correction of constipation, then exercises on the gravity board (head down) should be taken, as the leg movements will hasten the relief secured. The knee-chest position also is good for these symptoms.

Treatment of
Bearing
Down Pains



PHOTOGRAPH UNDERWOOD & UNDERWOOD

With this form of perambulator, babies are carried, in one modern maternity hospital, a half dozen at a time, from the nursery to mothers' rooms for feeding.

**Uremic
Conditions**

KIDNEY AFFECTIONS AND UREMIA.—Owing to the unusual demand placed upon them during pregnancy, the kidneys may “give way” and their function be greatly impaired. Dropsical swellings of the ankles, feet and legs may result. Often a moderate swelling of the ankles and feet may occur during pregnancy without indicating a serious affection of the kidneys. But when any condition suggesting kidney involvement arises it should be kept under careful observation and urinalyses should be made daily or two or three times a week. The kidneys, in fact, may be seriously degenerated before any external signs appear, and a woman seemingly healthy may be seized suddenly with uremic convulsions or the convulsions of eclampsia. When either of these conditions develops, rigid treatment will be necessary to save the mother. Frequently the child is sacrificed by being taken from the mother as quickly as possible.

The persistence in the urine of the slightest trace of albumen should be considered as of grave import. In this condition an alkaline diet is advantageous, the milk diet being particularly valuable. It may be necessary to remain on a

somewhat limited amount for some time, but with the decrease of albumen the best amount is from four quarts up to five quarts daily, depending upon the woman's height, normal weight and stage of pregnancy. While the woman late in pregnancy requires as much, or practically as much, nutriment as in early pregnancy, the strict and full milk diet causes such crowding of the digestive tract that great discomfort will result from it. The best way then is to take as much as can be taken comfortably, according to instructions given in Volume VII.

The milk should be sipped or taken through a straw—certainly not drunk as one drinks water. If the milk diet cannot be taken or if not enough milk can be taken for full nutrition, a fairly normal diet otherwise may be used, taking as much milk, fruits and green vegetables as necessary, and using junkets, custards, milk soups or other foods to provide still more milk than can be drunk. Meat and other heavy proteins should be avoided. A low-protein diet is necessary when the kidneys are diseased. Daily neutral baths taken for fifteen to thirty minutes also will be of considerable value.

Uremia is a form of auto-intoxication occurring in certain forms and degrees of nephritis or in suppression of the urine from any cause. The exact toxic agents are not known. They may be merely poisons which normally are produced in the body and eliminated but which are retained through failure of the kidneys to carry them off; or they may be new substances resulting from the altered metabolism. In any case the reduced kidney action is immediately responsible for the development of uremia—one of the most dangerous complications of pregnancy.

Aside from reduction or suppression of urine, there are nausea and vomiting or vomiting without nausea, severe headache, restlessness, loss of appetite, vertigo, difficult breathing, insomnia, delirium, convulsions, and coma ending in death unless relief is promptly secured.

As elimination must be rapidly increased, the hot bath, 115 degrees Fahrenheit, or a hot-blanket pack are serviceable. With a hot-blanket pack extra heat should be applied to the feet and sometimes cold applied to the head. Considerable hot water should be taken by the patient if conscious; also a hot

Treatment of
Uremia

enema of two or more quarts of plain water should be given for its effect upon the bowels and kidneys. There should be no food until the patient is resting comfortably (in case there were convulsions), after which milk should be given or first fruit juice and shortly afterward milk. Rarely will one rely upon home treatment, however, for such a serious condition as uremia, hence it is not necessary to give here all possible beneficial treatment. In Volume VIII will be found further treatment for this affection.

**Enlarged
Veins**

VARICOSE VEINS.—Numerous conditions other than pregnancy cause varicose veins, but during pregnancy there is an increased tendency toward them. Any that existed previously are likely to be accentuated at this time. The veins of the rectum, anus, broad ligaments, bladder, vagina, external genitals and lower extremities all may become enlarged and varicosed during pregnancy as a result of the enlarging uterus obstructing the circulation. Successive pregnancies may cause progressive enlargement, once the veins begin to enlarge. Many women have varicose veins in the lower extremities, the right leg usually being first affected, the position of the child in the uterus throwing more pressure upon the vessels of the right side than of the left. Often the varicosities are not present until late in pregnancy when they may rupture or cause pressure edema, and sometimes undergo degeneration.

The birth of a child often permits the veins spontaneously to return to normal, especially if the woman remains off her feet for some time after delivery. If the condition has existed sufficiently long and if the dilatation is pronounced there likely will be some permanent enlargement. The daily half-hour immersion bath at neutral temperature will often help prevent further enlargement when once the veins begin to dilate, but in late pregnancy it may be necessary to take two such baths a day.

The patient should sleep with the foot of the bed elevated in order that the veins may be drained of congested blood and that for the hours of sleep normal circulation may be carried on. Often it is advisable that bandages or elastic stockings be worn, these to be put on before arising from bed. Standing or very slow walking is injurious, while fairly brisk walking is beneficial. However, by the time these veins develop to a

pronounced degree the woman may be so well advanced in pregnancy that she hesitates to walk briskly. Rising on the toes and alternately raising the knees will relieve the tension of long standing.

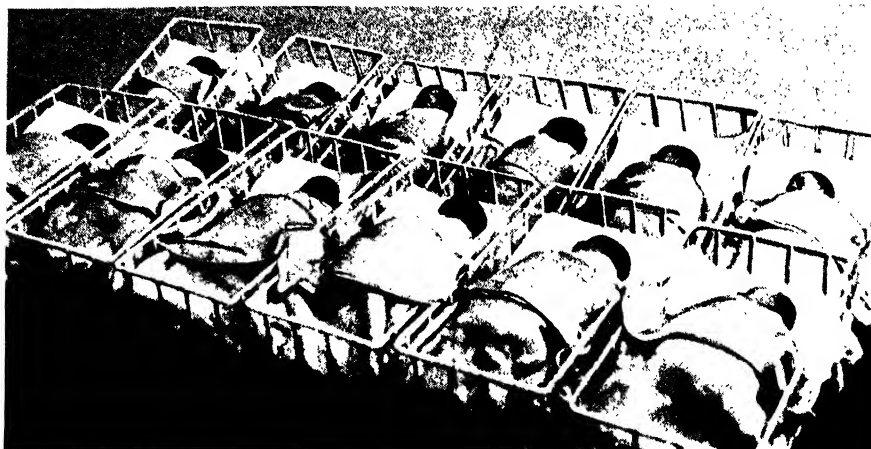
If an enlarged vein bursts the hemorrhage may be checked by tying or holding a clean handkerchief or other cloth over the break and then applying a clean cold compress or perhaps a piece of ice.

ANEMIA.—In the late months of pregnancy there is a normal anemia, which occasionally becomes so pronounced as to resemble pernicious anemia. The hemoglobin may fall as low as 30 per cent. and the red blood-corpuscles be reduced to one-third of normal. An anemia victim is less resistant than a normal person to autotoxemia and septic infection. Certain forms of anemia are aggravated by pregnancy, especially pernicious anemia and leukemia. The anemic pregnant woman should have a diet rich in mineral elements, particularly green vegetables and milk, but also egg yolks, all fruits and whole grain products, and dairy products other than milk. There should be an abundance of fresh air and sunlight, also tonic cool baths, provided the general condition will permit. Colonic irrigations may be helpful. In an occasional progressively bad case it may be necessary to terminate the pregnancy.

Diet in
Anemia

PRURITIS VULVAE.—This is a condition of severe itching of the external genitals, sometimes resulting from irritating discharges from the vagina or the cervix, sometimes from urine changes, and sometimes from a neurosis. An alkaline vaginal irrigation may bring considerable or complete relief, especially when the pruritis is due to vaginal or cervical discharge. Hot compresses or fomentations or the hot shallow sitz bath, will give temporary relief. The diet should be lighter, more water should be drunk, constipation corrected and the general health improved in every way possible. If the condition results from diabetes, this disease should be treated.

INTERCURRENT DISEASES.—Intercurrent diseases during pregnancy may have a serious effect upon both mother and child. Febrile diseases, such as grippe, pneumonia, influenza, typhoid and scarlet fevers, sometimes cause death of the fetus, with resulting abortion. Heart disease will require special attention, as it may not respond to the extra demand laid upon



PHOTOGRAPH PACIFIC & ATLANTIC

A dozen new arrivals in a maternity hospital.

it by pregnancy, and symptoms of broken compensation or heart failure may follow. This may be guarded against by avoiding all sudden exertions and by gradual heart training as described in Volume VIII, under *Heart, Diseases of*.

Chronic respiratory diseases, such as asthma, emphysema or bronchitis, often will be aggravated by pregnancy. Tuberculosis of the lungs practically always advances rapidly during pregnancy, especially during lactation or the period following childbirth. It often results fatally. Hemoptysis, or lung hemorrhage, occurs in one-half of these cases. Dormant tuberculous conditions anywhere in the body may be acute or more active during gestation. Women with pulmonary tuberculosis should never become pregnant. Whether or not the pregnancy causes the early death of the mother, which it is likely to do, the child probably will inherit a susceptibility to the disease or a frail constitution.

FASTING DURING PREGNANCY.—The question of the treatment of illnesses during pregnancy by fasting and other vigorous natural measures is one that will often arise. Sickness during pregnancy should be treated much the same as at any other time. Proper treatment by natural measures usually will prevent long sickness. However, the pregnant woman must have due regard paid to her condition and her altered needs and functioning if results from her treatment are to be satisfactory.

Fasting for
Disorders
During
Pregnancy

Common sense will suggest that the fast be of short duration or a fruit diet substituted for it. Prolonged steam or other sweat baths or cold baths should not be taken. Deep abdominal massage or use of the mechanical vibrator, or any other means or methods that may result in the death of the fetus, must be avoided. If all these facts be given careful consideration and moderation be the keynote of all treatment, except perhaps in an occasional emergency, a successful outcome of pregnancy can be confidently assured.

MAKING CHILDBIRTH EASIER.—Fortunately for the race, pain is soon forgotten. Few women would bear a second child if memory of the first childbirth pain remained. It is this fact, almost as much as the yearning for children, that carries women through numerous pregnancies.

Childbirth is a perfectly natural process. Yet in spite of this, pregnancy and child-bearing and diseases associated with them cause the death of several thousand women every year in this country and bring injury and ill-health to many thousands of others. While a fair percentage of women pass through childbirth with comparative ease the majority suffer greatly. Lacerations, or tears, are frequent; recourse is had to anesthetics to allay pain and lessen danger of lacerations; instruments are employed in many cases to deliver the child.

Ameliorat-
ing Pain in
Childbirth

Suffering, injury and resulting ill-health are unnecessary. Among savages, pregnancy and childbirth are comparatively simple and harmless matters. The troubles modern women have are the results of civilization, of different modes of living and of relegating what should be general knowledge to a select class, presumably specially fitted for it.

The average pregnant woman is encouraged to "eat for two," but in attempting to do so she usually eats enough for a fair-sized family. It would be surprising if the wrong living of pregnant women did not lead to abnormal pregnancy, and if the abnormal pregnancy and continuation of wrong living did not cause an abnormal childbirth.

The attachment of the fetus to the uterus, as already mentioned, is insecure during the last few weeks of pregnancy. The pressure of a large and heavy abdomen filled with gas tends to bring on labor ahead of full term. In premature labor the neck of the uterus has not had time for the slow

Factors Making Child-birth Difficult

process of full relaxation and dilation, and delivery necessarily must be painful and probably accompanied with lacerations. The delivery will be slow and difficult, causing the exhaustion of mother and child.

Overeating and underexercising crowd the uterus with an excess of amniotic fluid, with the result that the fetus may roll about and become entangled in the cord. Sometimes the cord is so shortened by this entanglement that the child cannot easily descend for delivery and, in addition, its position may prevent normal delivery. These conditions make childbirth long and painful and may cause serious damage to the mother. When the fluid is excessive and the membrane thin the membrane is likely to rupture prematurely, which necessitates expert and prompt work on the part of the attending physician to save the child from suffocation or death during the powerful contractions of the uterus.

Overeating often makes the mother and the child unduly fat and this may cause a painful and dangerous delivery. Many women are encouraged to believe that the increase in weight is a sign of health. So far is this from being true that the excess fat not only leads to painful childbirth but renders the woman susceptible to inflammations and infections. She is more liable to inflammation of the breast, to milk fever, milk-leg and to loss of milk. The child should weigh not more than six to eight pounds at birth and its head should be easily molded. Excessive eating causes the child to become oversized and its bones unduly resisting, so that molding of the head is much delayed and dilation of the mother's parts necessarily excessive.

The pregnant woman should abstain from eating a fattening quantity of food. If her normal weight is about one hundred and twenty-five pounds she need not gain more and preferably less than twenty pounds. The child should weigh not over eight pounds, the uterus will weigh about two pounds, the placenta a pound or two more, the liquor amnii should not be more than three pints, perhaps less (three pounds or less), and the increased weight of the breasts between one and two pounds. A slight general increase in fat, while not harmful, is not necessary, and will benefit neither the mother nor the babe.

Women often become enervated from excessive work or

worry or social life or sexual indulgence. Enervation results in the development of toxemia. Since the majority of women constantly overeat during pregnancy and by so doing produce toxemia and enervation to produce more toxemia, they are almost certain to be toxemic long before pregnancy is terminated.

CHILDBIRTH IN ATHLETIC WOMEN.—Women today are going more and more into sports and outdoor activities. But good as sports are for general health they are not particularly adapted to the purpose of preparing women for childbirth. They are better for pregnancy because they develop the natural corset, general health, strength and vitality. But sports are more or less specialized, exercising some muscles and neglecting others, and they easily lead to overexertion. Those who indulge in sports of various kinds should have increased grace and suppleness; but often such is not the case.

Exercises for
Flexibility
Needed

For safe pregnancy and easy childbirth, women require a flexible spine, elastic ligaments and supple muscles and joints. Savage and primitive women have few disorders of pregnancy or childbirth. Many of their tribal dances call into action all the muscles of the waist, abdomen, hips and thighs, along with hip-rocking, swaying, bending, twisting and stretching movements. As a result of these dances their spines are flexible, their hips mobile, their pelvis in proper condition to respond to the needs of childbirth, their internal generative mechanism normal. While the pregnant woman could not do these dances, it would be better for her pregnancy and delivery if, before pregnancy, she took similar exercises.

Certain other exercises may be used to advantage and with greater safety after pregnancy begins. Some of these movements are illustrated in this section. Other equally beneficial effects of exercise are the increase in circulation and a more nearly normal nerve supply to the pelvic organs. Further results of such exercises are general health improvement, causing the uterus to return to pre-pregnant size, and strengthening of the supports of the uterus so that displacements and other abnormal conditions may not develop after childbirth.

The best time for exercising is in the morning after arising but before dressing. Any light-weight garment that permits full movement and contact of air with the body may be worn

but if possible it is better to wear no garment. It will be excellent to follow the exercises with a sponge or other bath of neutral temperature (see Volume VI) in warm weather and to precede them with such a bath of a minute or two, followed, in cold weather, with a thorough dry-towel friction for five or ten minutes.

The Three
Stages of
Labor

LABOR, PARTURITION, AND DELIVERY.—In about forty weeks (ten lunar or nine calendar months) from the time of conception the fetus reaches full maturity and labor begins. Labor is divided into three stages. During the first, the neck of the uterus becomes slowly distended and the orifice of the organ opens widely. When dilatation of the neck of the uterus is practically complete, the first stage of labor ends and the second stage begins, the pains changing their character. At the end of the first stage the bag of waters usually, but not always, ruptures with attendant escape of amniotic fluid. The average duration of the first stage of labor is somewhat less than six hours, though it may last twenty-four hours or longer and not infrequently only an hour or two, depending largely upon the muscular action and the rigidity of the cervix.

The second stage is that of expulsion or birth of the child. In first labors this lasts about one hour, and in subsequent births about ten to fifteen minutes. It is followed by the third stage, the expulsion of the placenta or afterbirth. The duration of this last stage varies, depending upon the physician, but rarely is delayed longer than fifteen or twenty minutes. These occurrences are produced by the force of the uterine contractions aided by contractions of the abdominal muscles.

During the last few months of pregnancy the fetus has assumed a fairly constant position. As it floats in liquid, it settles with its heaviest part (the head) downward. But an excess of amniotic fluid may cause it to assume some other position. A change of position may result from other causes.

SIGNS OF THE ONSET OF LABOR.—*Lightening*, a sinking of the uterus into the pelvis, as a rule occurs from ten to fourteen days before the onset of labor. This sinking, accompanied by a reduction of the waist line, causes *irritability of the bladder and the rectum*, from pressure upon these organs, and more frequent evacuation than usually is necessary. Urination and defecation become still more frequent with the actual onset

of labor and there is an *increased discharge of mucus from the vagina and cervix*. The *show* appears as the cervix begins to dilate, this being a mixture of blood with the cervical mucus.

The occurrence of *rhythmic uterine contractions* is the most reliable indication that labor has begun. The uterus can be felt to undergo contraction at regular intervals, by placing a hand upon the woman's abdomen. These contractions increase in severity until they become *labor pains*. At first the pains may occur every twenty or thirty minutes, then gradually increase in frequency and severity until they reach their maximum frequency of one minute or so. Their maximum severity occurs just prior to the escape of the fetal head through the vaginal outlet.

MANAGEMENT OF LABOR.—What should be done before and during labor? In the first place some person qualified in the management of such cases should be engaged long before labor should begin. Having attended to the engagement of the attending physician or the midwife and of a nurse for the lying-in period, the woman herself turns to the preparation of the various supplies needed in labor. The following list represents the minimum of supplies required, and will serve as a guide in case more elaborate preparations are desired:

Supplies
Needed for
Childbirth

Tincture of green soap, 4 ounces

Saturated solution of boracic acid, 2 pints

Seven or eight gallons each of hot and cold sterile water in covered sterile containers

A new large, coarse, sterile sponge

A fountain syringe (sterilized by boiling)

A hot-water bag

A slop-jar or waste-pail

An agate bedpan, new or thoroughly cleaned and sterilized

Two or three agate basins of two-quart capacity

Soft-rubber or glass catheter

Two new hand brushes

One pound of absorbent cotton

Sterile olive oil or vaseline well covered or stoppered

One dozen freshly laundered towels

One half-dozen clean sheets

A large rubber cloth or obstetric blanket (2 yards by 1½ yards)

but if possible it is better to wear no garment. It will be excellent to follow the exercises with a sponge or other bath of neutral temperature (see Volume VI) in warm weather and to precede them with such a bath of a minute or two, followed, in cold weather, with a thorough dry-towel friction for five or ten minutes.

The Three
Stages of
Labor

LABOR, PARTURITION, AND DELIVERY.—In about forty weeks (ten lunar or nine calendar months) from the time of conception the fetus reaches full maturity and labor begins. Labor is divided into three stages. During the first, the neck of the uterus becomes slowly distended and the orifice of the organ opens widely. When dilatation of the neck of the uterus is practically complete, the first stage of labor ends and the second stage begins, the pains changing their character. At the end of the first stage the bag of waters usually, but not always, ruptures with attendant escape of amniotic fluid. The average duration of the first stage of labor is somewhat less than six hours, though it may last twenty-four hours or longer and not infrequently only an hour or two, depending largely upon the muscular action and the rigidity of the cervix.

The second stage is that of expulsion or birth of the child. In first labors this lasts about one hour, and in subsequent births about ten to fifteen minutes. It is followed by the third stage, the expulsion of the placenta or afterbirth. The duration of this last stage varies, depending upon the physician, but rarely is delayed longer than fifteen or twenty minutes. These occurrences are produced by the force of the uterine contractions aided by contractions of the abdominal muscles.

During the last few months of pregnancy the fetus has assumed a fairly constant position. As it floats in liquid, it settles with its heaviest part (the head) downward. But an excess of amniotic fluid may cause it to assume some other position. A change of position may result from other causes.

SIGNS OF THE ONSET OF LABOR.—*Lightening*, a sinking of the uterus into the pelvis, as a rule occurs from ten to fourteen days before the onset of labor. This sinking, accompanied by a reduction of the waist line, causes *irritability of the bladder and the rectum*, from pressure upon these organs, and more frequent evacuation than usually is necessary. Urination and defecation become still more frequent with the actual onset

of labor and there is an *increased discharge of mucus from the vagina and cervix*. The *show* appears as the cervix begins to dilate, this being a mixture of blood with the cervical mucus.

The occurrence of *rhythmic uterine contractions* is the most reliable indication that labor has begun. The uterus can be felt to undergo contraction at regular intervals, by placing a hand upon the woman's abdomen. These contractions increase in severity until they become *labor pains*. At first the pains may occur every twenty or thirty minutes, then gradually increase in frequency and severity until they reach their maximum frequency of one minute or so. Their maximum severity occurs just prior to the escape of the fetal head through the vaginal outlet.

MANAGEMENT OF LABOR.—What should be done before and during labor? In the first place some person qualified in the management of such cases should be engaged long before labor should begin. Having attended to the engagement of the attending physician or the midwife and of a nurse for the lying-in period, the woman herself turns to the preparation of the various supplies needed in labor. The following list represents the minimum of supplies required, and will serve as a guide in case more elaborate preparations are desired:

Supplies
Needed for
Childbirth

Tincture of green soap, 4 ounces

Saturated solution of boracic acid, 2 pints

Seven or eight gallons each of hot and cold sterile water in covered sterile containers

A new large, coarse, sterile sponge

A fountain syringe (sterilized by boiling)

A hot-water bag

A slop-jar or waste-pail

An agate bedpan, new or thoroughly cleaned and sterilized

Two or three agate basins of two-quart capacity

Soft-rubber or glass catheter

Two new hand brushes

One pound of absorbent cotton

Sterile olive oil or vaseline well covered or stoppered

One dozen freshly laundered towels

One half-dozen clean sheets

A large rubber cloth or obstetric blanket (2 yards by 1½ yards)

1660 OUTFIT FOR CHILDBIRTH

A small rubber cloth (1 yard square)

Two or three pieces of laundered unbleached muslin ($1\frac{1}{4}$ yards long by $\frac{1}{2}$ yard wide) for abdominal binder

Cheese-cloth (20 yards)

One dozen pieces of cheese-cloth, 18 inches square for wash-cloths, or plenty of old, clean linen, sterilized by baking in oven

Large and small safety-pins, 2 dozen each, or same number, all medium-sized

Pair of scissors

A fine soft sponge

Talcum powder

Castile soap

Several changes of baby's clothes

A package of sterile tape $\frac{1}{10}$ inch wide, or 1 yard of strong linen bobbin, for tying the cord

Package of sterile navel-cord dressings

Soft woolen blanket for the baby

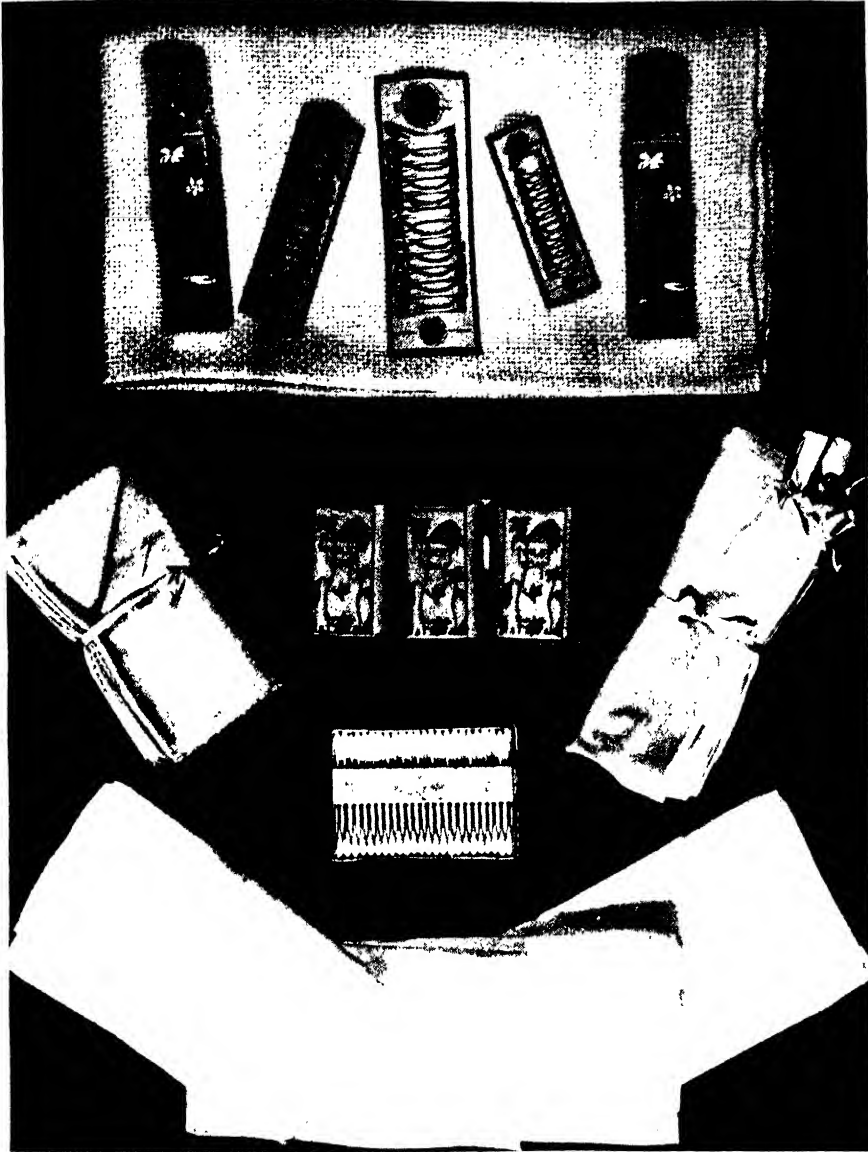
Bath thermometer

Infant bathtub of suitable shape, size and material

The cheese-cloth and cotton serve as material for two or three large absorbent pads and several dozen small occlusive pads. The large pad consists of several layers of cotton, two or three feet square and from two to four inches thick, covered with cheese-cloth and loosely quilted. The occlusive bandages are made by enclosing two thicknesses of absorbent cotton, seven or eight inches long and four or five inches wide, in one-fourth of a yard of cheese-cloth so folded as to make a pad sixteen or eighteen inches long and four or five inches wide, the edges being stitched. All pads are put up in wrapping paper, baked, and kept sterile until required.

The Enema

With the first sign of approaching labor, the physician in charge is summoned. After he has ascertained the progress of labor and the position of the child, he probably will direct (if labor is not imminent) that the woman have a thoroughly cleansing enema. If there seems to be any appreciable amount of fecal matter in the bowels, which frequently can be determined by external palpation, he may order a high colonic irrigation. If the bowels have been functioning freely and regularly every day a rectal enema of one pint of warm salt water may be all that is required.



This photograph shows the articles considered most necessary for the baby's toilet, including a change of diapers, soft flannel binders to be worn about the abdomen under the shirt, rubber sheet, pinning blanket, toilet soap, safety-pins, talcum powder and comb. These articles are the ones which the mother carries with her to use when it is necessary to change the baby's clothing and to keep him fresh and clean.

If there be time the woman may take a warm bath with soap. In any case her external genitals should be thoroughly bathed. She may now remain on her feet and walk about,

The Bath
before Labor

comfortably dressed, resting occasionally. If the labor is to be sufficiently delayed she may take light nourishment:

Meanwhile the bed is prepared, either by herself or by the attending nurse. An airy, warm room should be selected. The bed, preferably, should be narrow and high with a firm mattress. It should be placed so it can be approached from all sides. The rubber sheet is stretched over the mattress, fastened with safety-pins, and covered with a sheet which is well tucked around and under the mattress. This constitutes the permanent bed (bed covering). The temporary bed (covering) consists of a draw sheet with the small rubber sheet underneath. On top of the small rubber sheet and draw-sheet is placed the large absorbent pad. A soft, flat pillow at the head and a sheet or a clean blanket to cover the patient complete the outfit.

A chair is placed at the foot of the bed. On the floor, which should be covered with oilcloth or thick paper, the slop-jar or waste-pail is placed. On a small table within easy reach are vaseline, a half-dozen towels, the large sponge, the scissors (which should be sterile), the sterile tape for tying the cord and a basin filled with the boric acid solution, containing several pledgets of sterile cotton.

**Beginning
of Labor**

The woman usually is encouraged to remain on her feet and move around until the external orifice of the cervix has dilated to about the size of a silver dollar. If the pains are weak and "nagging" it may be to her benefit to stay up longer. If the pains become fairly severe they may be relieved appreciably by squatting while they last.

In the judgment of the attending physician, as soon as the bag of waters threatens to rupture, the patient is placed in bed. A premature rupture of the fetal membranes must be guarded against, as an escape of liquid at an early stage means a difficult and prolonged labor, with greater danger to both mother and child. Usually the membranes burst when the orifice is fully dilated, their function then having been served. The large sponge is held in readiness to catch the outflowing liquid.

During the second stage of labor the patient must remain in bed. The pains now change from the cramp-like, drawing pains in the abdomen, back and thighs to bearing-down pains.

Here it is well to emphasize that *with the onset of each pain during the second stage of labor the woman should fill her lungs to their greatest capacity—draw in as much breath as she can at each inspiration.* If closely adhered to, this one suggestion will greatly increase her ability to “bear down” and thus insure an early delivery. The air is suddenly expelled after bearing down for a few moments, and after a deep inspiration the pressure is resumed, to be continued until the pain ceases, this to be repeated with each succeeding pain. In case of organic heart or lung disease this procedure is omitted. Some help can be derived from a roller towel or a substantial strip of sheeting tied to the foot of the bed upon which the patient may pull during the pains.

Uses of
Zone
Therapy

Aid may be found at this time, not only in facilitating the progress of labor but also in relieving the pain, in the employment of certain measures whose value has been demonstrated in “zone therapy.” Obtain from a hardware store or elsewhere four sections of wood-screw about an inch in diameter, two of them being about four and two about five inches long. The former are for the hands and the latter for the feet, and each hand section is fastened at either end by a heavy cord to the corresponding ends of a foot section. During labor the hand sections are grasped firmly, and by strong traction on the cords the foot sections are pressed against the soles of the feet. The pressure of the palms and soles against the threads of the wood-screw produces an analgesic (pain-decreasing) effect. The stronger the pressure the more pronounced this effect will be. If lengths of wood screw cannot be obtained, ordinary blocks of wood about two inches square may be used, the pressure being given on a *corner* of each block against both palms and soles. No possible harm can come from employing these measures, and, not infrequently, great relief may be gained.

Usually the first stage of labor is ushered in by a sensation of sharp radiating pains in the abdomen, accompanied by a dull pain in the small of the back and in the lumbosacral region and a drawing pain in the thighs, sometimes a pain extending to the pubes. Women giving birth to their first baby (primiparas) may feel these pains several weeks in advance of the actual onset of labor.

Stage of
Dilation

The pains are caused by cramp-like contractions of the muscular body and upper part (fundus) of the uterus forcing its contents downward. As the contents are to some extent liquid the effect is similar to that produced by pressure upon a rubber bag filled with fluid: the pressure is equal at all points, but the weakest part of the restraining wall gives way and distends to its limit. This weakest part of the uterus is the cervix, which is a canal. Thus the walls of the neck of the uterus become thinner and thinner. First the inner and then the outer orifice of the neck opens, and the fetal membranes protrude. Finally these can no longer withstand the pressure of the amniotic fluid and they rupture, but they already have served their final purpose (that of bringing uniform dilation), and are no longer necessary; in fact, if they do not rupture spontaneously the physician ruptures them when dilation is complete. "The waters" escape and the part of the fetus nearest the orifice, usually the head, enters it.

When the head has "engaged" in the orifice of the uterus, the uterine contractions become strong and propulsive in character and are referred to the lower part of the abdomen and vagina. They often are spoken of as "bearing-down pains." Cramps may occur in the legs. The woman often complains of sensations of tearing and stretching of the vaginal and perineal tissues. The head is now forced toward the vulva, out of the uterus into the bony canal of the pelvis, lined by the vagina.

As the head proceeds on its course, descending in the pelvis, it exerts strong pressure upon the rectum, provoking intense desire to evacuate the bowels. This is more a subjective sensation than an actual need. Under no circumstances should the woman be permitted to leave her bed in order to gratify this desire, though a bedpan may be used.

The muscles of the abdomen, now contracting at each pain, help to express the fetus. Soon the vulva begins to gape and the on-moving head begins to show in the entrance of the vagina with each pain, gradually more and more of the head showing. It now rests upon the perineum (the soft but firm tissues between the rectum and the vulva). The perineum stretches under the enormous and steadily increasing pressure. After varying lengths of time, usually about thirty minutes,

the head becomes fixed in the vulva, the perineum being stretched to its utmost. Here the head slowly turns upward along the canal, the largest diameter entering the vulva and the face resting on the perineum (in the usual case).

When the head becomes fixed in the vulva, great care must be exercised to avoid a serious tear of the perineum. When a tear occurs here it is usually because the head advances too rapidly, before the perineum has had time to stretch to its maximum. A tear frequently may be prevented if, at the critical moment, the woman is warned not to press or bear down (usually letting her breath escape through her open mouth) and if the fetal head is retarded for a few pains by pressure of the hand of the obstetrician. Simultaneously the fingers of the other hand rest on the perineum and push the head forward (upward) toward the symphysis junction of the pubic bones. This procedure, which relieves the perineum of considerable pressure, is usually called "supporting the perineum." With proper support the perineum slips over the face and the head is born with slight or no laceration.

At first pale, the new-born head soon becomes blue and almost livid. However, there is no immediate danger to the infant and it is best not to interfere with the further natural progress of labor. When completely outside the vagina the child's head turns with its face toward one of the mother's thighs, to bring the shoulders into proper position for their delivery. With the next pain the neck and the shoulder nearest the symphysis (the one in front) appear, then the rear shoulder or the one on the perineum rolls out, to be followed immediately by the remainder of the body.

Anesthetics
in Labor

ANESTHESIA.—In two stages of labor anesthetics often are given; sometimes they extend from the one to the other. The first is the stage of dilation of the cervix—a stage in which Nature usually needs no assistance and in which the doctor can do little to help the woman. After the "pains" become strong and regular the woman often is given an anesthetic.

In the perineal stage, when the fetal head begins to bulge the perineum, anesthetics are also given. Some of the more experienced and conservative obstetricians will administer an anesthetic only at this stage. Unless given carefully and lightly in the stage of dilation, slow and prolonged labor

terminated by instrumentation may result. The aim of anesthesia should be to blunt, not abolish, pain. Ether is the anesthetic of choice, being given intermittently and for short periods when the pain is acute. Chloroform is more dangerous, especially when used over a considerable period of time. It may produce serious organic changes, especially in the liver.

Anesthetics should not be given unless absolutely necessary. They weaken the uterine contractions, through which proper dilation of the cervix must take place. So long as the pains of labor can be borne Nature should be allowed to do her work without interference. Their high-strung nature makes many women of today unfit for bearing pain. Some become hysterical when the pains are only mildly severe. The average woman can bear the pain of labor if she will. There are, of course, many women who require relief, and for such an anesthetic is a blessing.

A popular and erroneous idea is that a pregnant woman bears anesthesia better than one not pregnant. Partly because of this, anesthetics often are given thoughtlessly and hurriedly with results that are, not infrequently, harmful or even fatal. If an anesthetic is given to a woman in labor as great care should be exercised in its administration as though she were to undergo a major surgical operation.

Nature of
Twilight
Sleep

TWILIGHT SLEEP.—In some recent books on obstetrics are scant references to "twilight sleep," which was widely discussed about twenty years ago. The preparation producing it is still used. Morphine (or narcophine) and scopolamine in proper dosage produce a simple state of amnesia or memory loss with partial insensibility to pain. Twilight sleep was first employed in obstetrics in Germany in 1903, merely to reduce labor pains without producing unconsciousness (narcosis). Success in its use and relative safety depend upon carefully following an exact method.

When strong labor pains occur every four or five minutes and last for half a minute the first sedative dose is given, the two ingredients being injected separately. Three-quarters of an hour later the dose of scopolamine is repeated. Various memory tests are then made every half-hour, and if after one and one-half hours memory is still present a third but smaller

dose of scopolamine is given. Memory tests are again given and then, if necessary, repeated small doses, at long intervals, are administered, but no additional morphine is given. The patient's ears are stopped with cotton, the eyes covered and absolute quiet is maintained, even during minor examinations. Some obstetricians simplify this technique by giving routine doses and abandoning the memory tests. Some are highly enthusiastic regarding twilight sleep and employ it as routine except when there are certain definite contraindications; by others it is severely criticized.

Dr. B. C. Hirst, an authority on obstetrics, writes that its use causes "prolongation of labor, tendency to atony of the uterus with hemorrhage, and an increased proportion of apneic (breathless) babies that could not be revived." When sufficiently small doses are given to prevent these disadvantages the relief afforded is insignificant. J. O. Polak, on the other hand, claims that fetal mortality is lessened by twilight sleep. Hirst finds it valuable for its psychic effect on neurotic women who are likely to have a prolonged and painful labor when giving birth to their first child. In those having their first labor who are physically weak it gives relief and prevents great exhaustion. Polak uses it to prevent or reduce strain in women with heart disease and tuberculosis in the first stage of labor (dilation).

AFTER DELIVERY.—After delivery, the new-born babe is still connected with its mother by the pulsating umbilical cord, but under the stimulation of cold air and firm hands, it begins to breathe, announcing its arrival with a lusty cry. Then the pulsation of the cord gradually ceases. This ends the second stage of labor.

The baby is placed on its right side, with its face turned away from the mother, care being taken that the cord is not stretched too tightly. As soon as the cord ceases pulsating, which it does very shortly, it is tied (or clamped) securely about two inches from the baby's abdomen and cut a little beyond the compression. If it is clamped, it is cut close to the clamp. The other end of the cord may or may not be tied, at the discretion of the attendant. Sometimes the cord is tied in two places and cut between. The baby is now wrapped in a warm blanket and put in its crib.

Cutting the
Cord



PHOTOGRAPH PACIFIC & ATLANTIC

A prematurely-born infant that weighed at birth only one and a quarter pounds. Despite this handicap, such a child may grow to full normal physical and mental possibilities. Proper diet and care are necessary aids.

How to
Assist
Uterine Con-
traction

In a normal case of labor the uterus now contracts into a round hard mass. But immediately after the baby is born the hand of the obstetrician or nurse is placed for at least half an hour on the mother's abdomen over the uterine fundus, where it remains until the placenta is born (or, if the nurse's hand, until it is replaced by the physician's to facilitate placental birth if necessary). There usually is an interval of rest, lasting about fifteen or twenty minutes after the second stage of labor, during which the woman partly recuperates her forces. Meanwhile, the placenta ordinarily becomes detached and pains recur. If there is no hemorrhage the hand on the abdomen is passive—merely at rest on the uterine fundus. (For treatment of hemorrhage see *Postpartum Hemorrhage*, p. 1685.) The placenta is expelled by kneading the fundus of the uterus through the abdominal walls. It is not to be pulled

out by traction on the cord, for this latter method may cause the cord to break off, necessitating the insertion of the hand into the uterus to get at the placenta. It may also cause the placenta to mushroom, making removal much harder. Expressing it from above makes it slide out edgewise, a much easier way. This is important.

When there is hemorrhage, the hand makes gentle kneading and friction movements to promote complete contraction of the uterus and check the hemorrhage. A few minutes after the pains set in again the placenta is expelled, being caught in a basin or suitable vessel prepared by the nurse. This must be kept for the doctor to examine, to determine if the membranes and the placental tissue have been completely expelled. This terminates labor. The exhausted woman now sinks into a deep, wholesome sleep, from which she awakens refreshed in a few hours.

Termination
of Labor

Some physicians leave the patient as soon as possible. However, it is unsafe for them to do this for an hour or so. They should be certain that the uterus is undergoing proper contraction and that there is no hemorrhage. Some of the best obstetricians maintain, or have the nurse maintain, a hand on the abdomen over the uterine fundus for thirty or forty minutes after placental birth, in order that uterine changes may be observed. The empty uterus should maintain firm contraction. Because of the internal hemorrhage it will increase in size. This hemorrhage undergoes clotting, and serves as a stimulant to further uterine contraction—a remarkable provision of Nature for protection of the mother.

If a softening but rapid enlarging is detected by the hand on the fundus this will denote a relaxation of the uterus and there will be an increase in bleeding from the vagina. The hand then should give gentle friction and light kneading to the uterus. This usually will cause it to contract again, with arrest of the bleeding. Sometimes a cold compress of a piece of ice wrapped in a towel and laid over the fundus will aid in causing uterine contraction and will prevent undue hemorrhage. In some cases the uterus does not enlarge and rise in the abdomen (up to level with the umbilicus and slightly to the right), as it normally does after labor is completed. This indicates that no clot has been formed within the uterine cavity,

hence there will not be normal pressure against the open blood-vessels within the uterus so there will be steady genital bleeding. In this case the hand on the abdomen may reach well down into the abdomen so as to grasp the fundus and bring the uterus up out of the pelvis, giving pressure to the lower segment against the prominence of the sacrum and permitting the protective clot to form.

**Prognosis
for the
Mother**

If the mother has lived properly during pregnancy and has avoided the conditions that cause prolonged and exhausting labor she will pass through the puerperium, or lying-in period, without trouble and without need of any form of medication. Although many doctors give ergot as a routine procedure just after termination of labor (one-half dram of the fluid extract every hour for three doses) to increase uterine contraction, this drug may cause harmful reactions when used without scrupulous care. Some give hypodermic injections of pituitrin for the same purpose. If there has been an excessive amount of amniotic fluid, prolonged labor with exhaustion and pronounced drop in blood-pressure, multiple pregnancy, or some other condition to lower uterine tone and general vitality, there is likely to be inertia of the uterus after labor. Ergot has the effect of forcing uterine contraction, thus preventing hemorrhage, closing the blood-vessels and lymphatics so they will not absorb any infective material and, by limiting the blood supply, favoring involution or the shrinking of the uterus to normal size.

After labor the patient should be cleansed and provided with a clean and dry bed. The external genitals and soiled parts should be bathed with boric acid or some other mild antiseptic solution and as much of the bed changed as may be necessary. For genital bathing, the best procedure is to place a douche pan beneath the woman and pour the antiseptic solution over the external parts by means of a pitcher, merely separating the labia so as to wash away blood and clots. Pieces of linen, cheese-cloth or gauze (sterile) should be used for the bathing. In those cases in which there is a laceration of the perineal tissue surgical repair is best performed immediately, when the tear is fresh and the tissues more or less benumbed from the pressure of the child's head during the second stage of labor. Most obstetricians follow this pro-

cedure. After the cleansing, the vulvar pad or lochial guard is applied, being secured front and back to the abdominal binder, or to tabs on a broad abdominal band if the binder is not used. When the vulvar pad becomes soiled it is to be removed and burned.

The majority of physicians rightly advise the abdominal binder after labor. Because of the lowered abdominal pressure, it should fit snugly, at least for the first twelve to fifteen hours. Later it may be loosened or discarded. It should be well shaped to fit the body, extending from the upper abdomen to the prominence of the hips, but there should not be a pad beneath it over the fundus, as is sometimes advised.

A draw-sheet beneath the patient is a valuable protection to the bed. This consists of an ordinary clean sheet folded to four thicknesses, this being placed under the woman's hips, drawn tightly and pinned to the mattress. This may be changed as often as soiled without changing the entire bed.

Before leaving the patient the physician should determine her condition and know that she is safe; also he should so direct the nurse regarding the care of the mother and the babe, that there will be no misunderstanding and no neglect. He should observe the woman's general condition and he should see the patient within twelve hours unless he is assured that a fully capable nurse is in charge, and even then if there are any indications of abnormalities. Before leaving, he should give full directions regarding the care of the infant, such as when and how to bathe it, to care for the eyes, mouth, bowels, kidneys and cord, and regarding its temperature. It is better for the physician himself to instill the nitrate of silver or argyrol solution in the baby's eyes in order that he may be sure that it is done and done properly, for much may depend upon this simple procedure, as is explained later.

Care of
Mother after
Childbirth

THE LYING-IN PERIOD.—During the period immediately following delivery the woman's organs rapidly resume their normal condition and functions. At the same time her breasts assume a new function, lactation. Of all these changes those affecting the genital tract are most remarkable. Practically all the mucous membrane of the uterus comes away during childbirth, leaving a raw, discharging surface from which at first blood oozes in considerable quantity. The cervix and

vagina, greatly distended, sometimes bruised and lacerated or otherwise injured, produce their own discharge which mingles with the uterine flow. Thus there is a steady flow, called the *lochia*, from the woman's genitals, diminishing in quantity and changing in character as the repairing process advances.

The *lochia* are the normal discharges which follow immediately after labor. For four or five days they are called *lochia rubra*, which means that they are somewhat bloody. If they continue bloody after this time, they indicate uterine relaxation. In these discharges are blood, mucus, degenerated epithelial cells, shreds of placental tissue and decidua, and many microorganisms.

After four or five days, when normal, the discharges for two or three days are largely serous and are termed *lochia serosa*. Later they become more or less creamy in appearance, containing fat granules, leucocytes, epithelium and other substances, and are called *lochia alba*, this lasting for a few weeks or as long as required for the uterine lining to become fully regenerated.

During the first few days the woman usually will require about six changes of vulvar pads each twenty-four hours.

While the mucous membrane is being repaired the body of the uterus goes through a "building-down" process (involution), by the end of which it has resumed its original size and shape. The small rents heal spontaneously. Six weeks elapse before healing and mucous membrane regeneration are entirely completed, even when everything is favorable.

How Long to
Remain in
Bed

The length of time the mother should remain in bed after delivery depends chiefly upon her physical condition. It is better for her to remain in bed a day or two longer than she feels to be necessary. During the first few days absolute physical and mental rest are essential if the woman is weak or exhausted, lacerated, or has suffered severe hemorrhage, though after the first two or three days she may assume the sitting or partial sitting position for meals and for nursing and also to favor drainage from the vagina, and she may arise for bowel and bladder evacuations. But she should recline on one or the other side several times daily and on the abdomen for an hour or more each day.

About the only time a great many women get any real

rest is during their lying-in periods, so they should make the best of these opportunities. After four or five days, most of her time should be spent on the bed or a comfortable couch, half an hour twice a day should be devoted to abdominal and leg exercises. These movements should begin the second or third day and be continued during the next two or three weeks, gradually adding more movements. By the end of the second week, if not sooner, she may walk about the room and short distances outdoors, at least to a comfortable rest outdoors. After being on her feet or sitting for an appreciable length of time, she should take the knee-chest position before reclining.

Several phenomena normal to the lying-in period may cause some uneasiness in the patient or the nurse if it is not known that they may be expected. There usually is a sensation of chilliness within fifteen to thirty minutes after labor is terminated, due to vasomotor reactions. This has no important significance. Hot-water bottles at the feet and sides or hot drinks may relieve the condition. Soon after labor the pulse is reduced and may fall and remain for a week or more as low as sixty beats or less a minute; the blood-pressure also drops as a result of relaxation and reduction of general tension and mechanical pressure.

Shortly after childbirth the temperature rises, and for practically a week may remain around 100 degrees Fahrenheit, falling a degree during the second week. If it rises above 100 degrees it may indicate infection. The higher the temperature during the second week or later the more significance it has. There may be a rise to as high as 102 degrees for the first two days or so if there has been a tedious labor with pronounced pressure damage to the local tissues. Owing to various local conditions and to the reduced intra-abdominal pressure, there may be retention of urine for several days after childbirth and the woman may need to be catheterized, though this may be avoided by the use of hot compresses over the bladder. About one-half of puerperal women have slight albumen in the urine and many have sugar.

After Effects
of Childbirth

As a result of lowered tone throughout the intestinal tract and the abdomen most puerperal women have bowel inactivity or sluggishness for the first few days. In most cases there is

profuse perspiration for several days after labor, often most pronounced during the night. This helps restore a normal condition of the blood and tissues by getting rid of much of the excess water. Most women have "after-pains," resulting from uterine contractions. Those who have just passed through their first labor rarely feel them, but they tend to become progressively more severe with succeeding labors. They may occur only a few times or they may continue for several days. Sometimes they are so pronounced as to interfere with sleep. Many physicians now have the puerperal woman's mattress elevated at the head end for better drainage, and this usually lessens the after-pains.

On the second or third day the woman should be given a moderate-sized enema of plain warm water or of Castile soap-suds. Castor oil must not be given and all other laxatives are to be avoided. The enema may be used daily until the woman is up and about, though a suitable diet may bring about normal actions within two or three days. The bedpan must be used for these enemas for the first week or so, but not necessarily after this time.

Childbirth
Blood
Poisoning

Puerperal sepsis, commonly known as "blood-poisoning," is the greatest danger of the lying-in period. The exciting cause may be lacerations, or retention of part of the placenta or membranes. The general treatment described under *Typhus Fever* in Volume VIII should be instituted if this condition develops. By drinking generous amounts of liquids, preferably hot, this serious danger can be avoided. The best treatment is the fast, while drinking large amounts of water, or orangeade or lemonade. The object is to get as much fluid into the body as possible within the shortest possible time and to reduce the toxemia by abstinence from food. Protein foods are to be avoided in this as in other septic conditions. For this reason even milk should not be used if the affection is pronounced. Yet many cases have made excellent recovery within a surprisingly short time on the exclusive milk diet, when large quantities of milk are taken, up to five or six quarts daily. At times the milk may be taken in full amounts daily for half a day, during the other half day using an equal quantity of water.

The diet of the puerperal woman ordinarily (that is, when

there is no sepsis), should be a moderate quantity of easily digested foods, the kind and amount varying according to the woman's appetite, provided only wholesome foods are desired. As a general rule the lighter the diet the better. Milk, milk preparations, gruels and vegetable broths may be the diet for the first one, two or three days, especially if the appetite is not keen and there is exhaustion; custards and eggs also may be eaten during this time. When there is no fever or exhaustion the diet may be gradually amplified, allowing a wholesome natural mixed diet of fruits and vegetables, cereals, milk and other dairy products, and perhaps a little fowl or fish. Fruits and vegetables, cooked and uncooked, should be eaten in sufficient amounts to induce natural bowel activity, the heaviest meal being at noontime.

Earlier in this section the care of the breasts and nipples during pregnancy was given. After birth, during nursing, the nipples may need special care to prevent the development of fissures. Before and after each nursing they may be bathed with sterile gauze soaked in a saturated solution of boric acid containing one-eighth part of glycerin. Some physicians also urge the cleansing of the baby's mouth with a saturated solution of boric acid, but rarely will this be necessary. However, the infant should not be permitted to nurse excessively, as the long-continued moisture, suction and pressure may lead to fissuring of the nipple.

Care of
Breasts dur-
ing Lactation

In case of engorgement of the breast veins simple fomentations or hot compresses for fifteen minutes will give considerable relief. It usually is best to follow this application of heat by gentle massage, starting at the nipple and stroking to the base. This relieves the veins of their congested blood. If there should be inflammation in the breast, avoid massage.

When the breasts are overfull relief may be obtained by the reduction of the fluid intake. The application of a uniformly snug breast-binder also will be helpful. Before applying the binder the breast may be painted with equal parts of glycerin and clean, pure water, and this application covered over with a thin layer of cotton batting. Milking with the thumb and finger while supporting the breast in the hand also may bring relief.

Breast-nursing is strictly prohibited in certain conditions of the mother and of the milk, among these being tuberculosis, severe anemia, epilepsy, chorea, pregnancy, syphilis (unless the child already is syphilitic), and deficient quantity or quality of milk.

**Prolonged
Labor**

IRREGULARITIES OF LABOR.—Labor does not always take the natural course, but may be in one or more respects irregular. Of all irregularities a *protracted labor* due to deficient labor pains is the most common and the most important. While the usual duration of labor is from six to eighteen hours, it is sometimes prolonged to twenty-four or even forty-eight hours and sometimes requires surgical intervention for its termination. Deficient pains are more common in women who have given birth to several children in rapid succession than in young women during their first childbirth. The condition is a result of a weakening of the uterine musculature, but sometimes may be simply the expression of nervous excitement or a greatly run-down condition. The best possible prevention is the development of a strong healthy body before conception and a regular, health-preserving and health-improving life during pregnancy. When the pains are deficient a complete rest and sleep and normal nourishment should be provided, with no treatment if the membranes are unbroken and the patient's general condition is good.

If it should become necessary to accelerate the labor (first stage) this may be done by keeping the patient up and moving about, or by a hot sitz-bath for ten or twenty minutes, or the use of hot and cold compresses, alternately, over the abdomen. Sometimes stimulation of the uterine fundus through the abdomen may be of service. The physician may need to employ still other means in certain cases.

In the second stage, when delayed, the physician will have his own means of giving aid. But when possible he should avoid anesthesia and forceps. Fomentations over the lower abdomen or to the sacral region may start strong uterine contractions and sometimes all that is required is thorough warming of the patient. If the patient assumes the squatting position, or sits on the edge of the bed she may hasten delivery. If the soft parts have lost their tonicity through prolonged pressure, as indicated by failure of the head to recede between

pains, the use of the forceps is indicated, though of course there may be other indications for their use. Pituitrin may be used in moderation and with caution in extreme cases in which it is certain that there is no obstruction to stimulate normal uterine contractions and thus hasten delivery.

Labor sometimes (fortunately not frequently) is delayed by undesirable proportion between the dimensions of the child's head and that of the parturient canal; that is, either the head is too large or the canal is too narrow. Of these, the latter abnormality is the more common. Usually there is some deformity of the pelvis, this having been contracted in one or more of its diameters. Pelvic deformities are sometimes due to a general underdevelopment of the woman's skeleton, and sometimes (more often, in fact) they are the result of disease of the bones of the pelvis (rickets, osteomalacia), or of the spinal column (spinal curvature, hunchback), or of the hip-joint.

The management of labor in a case of contracted pelvis is difficult. When the child is of normal size, or perhaps slightly undersized and the deformity slight, natural birth will often take place in spite of the disproportion. In more pronounced cases the physician will be obliged to help the natural forces either by applying forceps or by performing version. The first operation consists in introducing an instrument with two curved blunt blades (the forceps) into the uterine cavity, grasping the fetal head between the blades of the instrument and pulling on it until the head is born. Naturally the application of the instrument, as well as the method of extraction, requires considerable skill.

**Forceps in
Delivery**

The operation of version consists in introducing the sterile hand into the uterine cavity and turning the child so that another part than the original presents itself, extraction being made from the new position. The version usually is made to bring the feet to the opening, the child being extracted feet first, one foot at a time.

In very rare cases the pelvis is so narrow that neither of the above operations is available. Here it sometimes is possible to help the mother by inducing labor after thirty-six weeks of pregnancy, when the child's head has not yet reached its full size. When even this procedure is impossible, Cæsarian

**Cesarian
Birth**

section becomes necessary. This operation is now performed much more frequently than formerly. It consists in opening the mother's abdomen and uterus and removing the child through the incision. It is so termed because Julius Cæsar is said to have been born in this manner.

Sometimes the difficulty of a narrow birth canal is not due to a deformed pelvis but to some abnormal condition of the soft parts. Among these are closure (atresia) of the vulva (by adhesions or scar changes, edema, blood tumor, rigidity of the pelvic floor or hymen, cancer); or of the vagina, which may be congenital or acquired; benign or malignant tumor of the vagina; cystocele or rectocele; rigidity or cancer of the cervix. These conditions call for quick action on the part of the attending physician, with specific procedures in some conditions. Usually the labor will be successful with a little assistance, though necessarily prolonged.

**Overlarge
Babies**

In case the labor is delayed by an overlarge child, the methods employed are much the same as in ordinary delivery. The choice of the method used will depend upon the degree



PHOTOGRAPH INTERNATIONAL NEWSREEL

In this improvised incubator is shown a baby weighing three pounds at birth, the child being one of twins born at a New York hospital.

of disproportion, so the obstetrician must always use his best judgment. The general principle by which he is guided is to save the mother first and foremost and do her as little harm as possible. The life of the child is a secondary consideration, although it will always be his aim to save it if he can do so without endangering the life of the mother.

Here must also be mentioned the rare condition of an increase in the size of the child owing to malformations, such as development of monstrosities, or to disease, such as hydrocephalus. Monstrosities of various kinds may occur. Usually they consist of the multiple development of some part of the body, such as two heads, or four arms or four legs. In extreme forms of this condition twins are joined at front, sides or back ("Siamese twins"). Even such cases are sometimes delivered spontaneously, but usually complicated surgical operations will be required.

Where the head of the child is overlarge on account of hydrocephalus or other condition, version usually is the required procedure, with additional tapping of the brain cavity through the fetal spinal canal. Naturally, in all cases of monstrosities the surgeon will choose the operation least dangerous to the mother without regard to the life of the baby.

Labor often is delayed and made more liable to cause damage to the mother by the child presenting in some other than the usual crown or vertex position. Thus there may be presented a shoulder (1 in 250 labors) or a breach (1 in 60 births) or face (1 in 200 births) that requires version before delivery can be accomplished. The experienced physician usually will have no great trouble in completing the version and the delivery, though the labor necessarily will be increased somewhat.

Among other irregularities occurring in the first and second stages of labor is *placenta previa*. This term is applied to a condition in which the placenta finds its attachment near, bordering upon, or extending over the neck of the uterus, instead of at the fundus. It occurs in about one in a hundred cases, four or five times as often in multiparae as in primiparae, and usually in the laboring classes. As a result, the placenta becomes detached at an early stage of labor and unusual bleeding occurs and may prove fatal. The detach-

Abnormal
Positions
of Child
at Birth

ment may also cause asphyxia of the child before birth can occur.

The treatment consists in packing the vagina tightly with sterile gauze and performing version as soon as the cervix has dilated sufficiently to admit the physician's hand. Where packing does not stop the hemorrhage the physician will not wait for sufficient dilation but will dilate forcibly and perform version. However, there are different procedures followed by different obstetricians in handling these cases.

Abnormalities of Umbilical Cord

Averaging once in about 250 labors, delivery is complicated by *prolapse of the umbilical cord* (called prolapsus funis). This results from various causes, such as excessive liquor amnii, abnormality of fetal presentation, twins, deformed maternal pelvis, large pelvis, small fetus, pendulous abdomen, excessive length of the cord, and membrane rupture while the woman is standing or sitting. Except for the condition responsible for it, the prolapsed cord adds nothing to the maternal danger. In about one-half of the cases the fetus dies through interference with circulation through the cord, the circulation being stopped by compression of the presenting part. The handling of this complication must be prompt if the child's life is to be saved, but the method employed will rest with the physician.

PRECIPITATE LABOR.—This is labor which occurs suddenly, before the usual time for dilation to be completed. The uterine contractions may be excessive or the resistance may be deficient, as in women who have had several children or who have large pelvises, or when the child is small or has a small head. Usually there are no great dangers, the principal ones being premature detachment of the placenta, shock, postpartum hemorrhage, and lacerations, especially if the mother be a primipara.

To the child the main dangers are possible falling as a result of the unexpected labor (onto the floor or perhaps into a water-closet), rupture of the cord and asphyxia before birth, resulting from the cessation of circulation between the uterus and the placenta due to the more or less constant uterine contractions. This hasty labor may be prevented by lessening the abdominal pressure through posture, the woman lying on one side. The patient should be in bed from the beginning of labor

pains. In some cases anesthesia may be necessary, but rarely will this be required.

ADHERENT PLACENTA.—During the third stage of labor there sometimes are encountered cases where the uterus shows some sluggishness in its contractions and retains the after-birth. It usually is possible to assist the woman in such a case by external manipulations of the fundus of the uterus through the abdominal wall, the fundus to be compressed steadily, with pressure toward the outlet. Sometimes, however, the attachment of the placenta to the inner wall is so secure that the above method is not sufficient to express it. In such case the physician may introduce his sterile hand into the uterine cavity and by gentle manipulations with his fingers sever all adhesions, when he will be able to remove the entire placenta.

After the uterus has been emptied of all its contents it usually contracts firmly into a solid, hard round mass. But sometimes the muscle remains flaccid and as a result a dangerous hemorrhage follows. To prevent this, it is necessary to stimulate the uterine muscle by friction or compression or cold compresses over the uterus. If these should have no effect the uterus must be packed with sterile gauze for from twelve to twenty-four hours.

In practically all complications of childbirth, the physician will be able to adopt measures that will bring about comparatively normal delivery; and in those cases that cannot be naturally delivered he will be able to adopt what measures are necessary for completing the delivery without serious detriment to the mother and perhaps without serious harm to the child. It usually is best that the pregnant woman engage her physician early in her pregnancy, so that not only may her condition be observed during pregnancy but that he will know whether or not she should be able to have a normal delivery and make his arrangements for her care accordingly, long before her confinement.

Promoting
Normal
Delivery

POST-LABOR AFFECTIONS.—After labor, one of several abnormal conditions may arise. These are called postpartum or puerperal affections, both terms meaning affections occurring after childbirth.

Mastitis is inflammation of the breast. It occurs in 5 or 6 per cent. of nursing women, being more common after

first births than after subsequent labors, 68 per cent. occurring in primiparae, and oftener in blondes than in brunettes. General poor health, general toxemia, milk stasis and injury to the nipples are the underlying causes, sepsis being the exciting cause. The inflammation may be beneath the skin, within the gland proper, or beneath the gland. Two or more of these locations may be involved at once. The location of pain varies with the location of inflammation and there are other signs of infection: chill, fever, local swelling and, in the subcutaneous form, a visible pustular area.

Care of the body in every natural way before lactation begins (during pregnancy) and during nursing usually will make this inflammation impossible. Care of nipples and of breast engorgement are given elsewhere (pp. 1633 and 1675). If inflammation begins the baby should be taken from the breast immediately for a day or two and fed by bottle. The mother should restrict her fluid intake and open the bowels well, even by salts or other saline laxative if necessary. A brief fast will be of great benefit, followed by a simple fruit diet or fruit and vegetable diet. Compresses, hot and cold and binding, may be necessary. If actual suppuration takes place the condition will require treatment by a physician, as operation to release the pus will be required.

Causes and
Symptoms of
Childbirth
Infection

PUERPERAL INFECTION.—This condition is an infection arising in the genital tract, due to local injury plus a general toxemia. It also is called puerperal fever, puerperal sepsis, puerperal septicemia and metria. The mortality from puerperal infection today is only about one-fourth of 1 per cent., whereas it formerly was from 2 to 6 per cent. Better sanitation and better hygiene, together with antisepsis, today have lowered the mortality. But hastening the childbirth by use of forceps before dilation is complete raises the mortality in private practice—the injury (lacerations) from this cause being greater than in maternities where haste is not a factor.

Even if death is not caused by the infection, the health of the woman often is affected seriously, even permanently. But improper treatment may be considered the cause of the later health affection or death. Primiparae are affected more often than the multiparae. The heavy drainage necessary by the lymphatics and veins to bring the uterus and other structures

back to normal after labor, makes it easily possible for any infective material in wounded tissues to reach the entire body, though sometimes the infection remains rather locally confined.

Any of the local tissues or any combination of these may be affected, and as a result of absorption any organ of the body may be affected. Rapid pulse, rise of temperature, slow involution of the uterus and fetid lochia are the chief early symptoms. Other symptoms of infection develop in time, their nature, number and degree depending somewhat upon the location of the local infection and special organic susceptibility.

Treatment
of Puerperal
Infection

The treatment of puerperal infection should consist primarily of pre-labor hygiene to maintain general health and quality of blood at the best, and avoidance of instrumental delivery if at all possible. There should be, of course, all reasonable precautions in regard to strict cleanliness during and after labor. Repairs should be made at once if necessary, and care should be taken to see that the uterus is emptied of the placenta and all membranes. The Fowler position (lying with the body sloping downward toward the feet by having the head end of the bed or springs elevated) will aid drainage and help prevent infection. Warm vaginal douches and large fairly warm enemas may be used two or three times a day.

The diet must be restricted and protein foods used sparingly. This applies in severe cases even to the milk diet. Flushing the body with large quantities of liquid is of great value. Strict fast, with an abundance of water, may be used with best possible results. If



This bust exercise may be taken without arising from couch or bed. It is performed by clasping one hand within the other and then pushing the opposite arm across the chest while now resisting the movement. Exercise may be performed as often as endurance permits.

there are remnants of membranes in the uterus they will usually be cleared away by this treatment, though special treatment by an obstetrician or physician may also be necessary.

Milk-leg *Milk-leg* (phlegmasia alba dolens) is one form of puerperal infection, the lymphatics carrying the inflammatory process down the thigh, the vein becoming inflamed. This condition appears from two to four weeks after delivery, sometimes beginning with a chill, always with pain and swelling in the extremity affected, the pain first being felt in the groin but within a few hours extending to the thigh and leg. The extremity becomes swollen, tense and hard, white and glistening, and the inflamed veins can be felt as hard and irregular cords, perhaps nodular. The condition may last for several weeks, but begins to subside as a rule within a couple of weeks. Abscess or gangrene may develop. There may remain for months a swelling of the leg on standing or walking and the muscles may not recover strength during this time. The other extremity may become involved by extension. Careful treatment is necessary.

Milk-leg will usually respond to the same treatment as that given for puerperal infection, though in this case the patient should lie in the horizontal position. The affected leg should be elevated and supported by pillows. Hot compresses about the hips and thighs or entire extremities may be valuable, especially in case of severe pain. A heating compress, protected by oiled silk or other impervious material, may be used. Abscesses are to be treated as in any other case. Continued use of hot compresses, or of alternate hot and cold applications, is of value after the patient is up and about, which should not be, however, until the swelling has subsided and the temperature has been normal for a few days. Massage is of benefit after the acute stage of the disease has passed, but is dangerous during this stage, as it may give rise to embolism.

PUERPERAL INSANITY.—From the first to the sixth week after childbirth, usually during the first or second week, this mental disorder begins, though it sometimes begins during pregnancy. The condition develops in about 1 in 400 puerparae. Primiparae are more often affected than multiparae. The usual form of insanity is melancholia, but mania

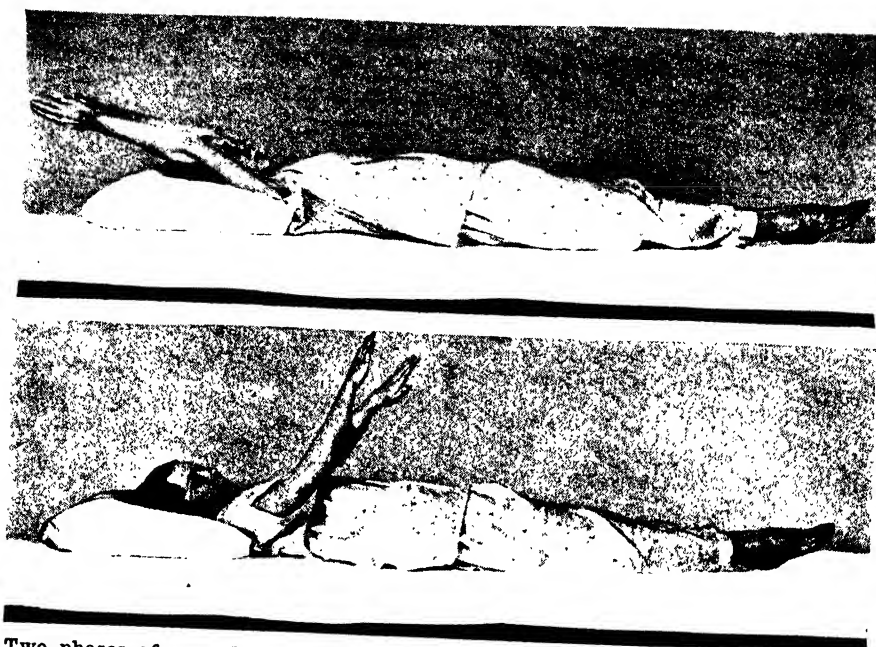
sometimes develops. Among the causes may be mentioned hereditary instability, bad mental hygiene, violent emotional disturbances, exhaustion, extreme toxemia, eclampsia, anemia and sepsis. The majority are due mainly to autotoxemia or septic infection.

In some cases women suffer puerperal insanity during, or after, each pregnancy. Such cases are among the strongest arguments for birth control. After a single attack of insanity and especially after a second attack, the Fallopian tubes are sometimes tied or cut to prevent further pregnancies. The maniacal cases make better progress than the melancholic, and those occurring during pregnancy respond better than those developing during lactation. Those without pronounced hereditary influence respond more quickly than those with such influence. About 70 per cent. recover reason. Mortality is from 5 to 10 per cent.

Insanity
before and
after Child-
birth

As a rule, if proper nursing can be secured, home treatment is better than institutional treatment. As some of these cases have a suicidal tendency or a pyromaniac impulse (for setting fires), they must be carefully watched. They are usually not dangerous to others, though the violently maniacal may be at times dangerous. Calm and rest, judicious walking, plenty of fresh air, observance of all rules of hygiene, diet suited to the patient, a fast of short duration with copious amounts of water drunk in other cases (depending upon severity of symptoms and general physical condition), and colonic irrigations are required, perhaps warm vaginal irrigations also, as in the case of puerperal infection. General treatment is the same as in anemia, soothing baths and hydriatric applications for the mental derangement. But if treated properly by hygienic methods any kind of narcotics will rarely be required.

POSTPARTUM HEMORRHAGE.—Hemorrhage that occurs during the third stage of labor, from the placental site, or within the first twenty-four hours, is called postpartum hemorrhage. Bleeding from lacerations is not included. In normal cases there is a loss of blood at delivery varying from two or three ounces to one pint. Over this amount is excessive and comes under the term postpartum hemorrhage. The causes are inertia of the uterus, which fails to clamp down on



Two phases of a useful movement for the chest and bust. The first shows the position for beginning exercise. From this position, hands are brought down smartly to cross each other over chest, then swung back to rigid position. Exercise may be repeated from a dozen to twenty times with benefit.

the blood-vessels; precipitate labor; hastened and poorly managed third stage of labor; excessive use of chloroform anesthesia; kidney disease; bleeder's disease or hemophilia; full bladder or rectum. Retention of fragments of secundines (placenta and membranes) and uterine tumors also may cause it. If the uterus is firmly contracted (as felt through the abdominal wall) and there is a pronounced hemorrhage or bloody flow, the blood comes from lacerations and not from the uterus.

The uterus must be cleared of all secundines. Pituitrin is sometimes used if the uterus persistently fails to contract. Hot intra-uterine douches and uterine manipulation usually will suffice in moderate hemorrhage. Or the uterus may be lifted out of the pelvis and pressed against the spinal column. In case of severe hemorrhage a physician should be in charge. He may need to insert a hand into the uterine cavity and give pressure also through the abdomen. A hot intra-uterine douche containing acetic acid (3 per cent.) sometimes is used. Firmly

Postpartum
Hemorrhage
—Treatment

packing the uterus is one of the most effective measures. Nursing the baby at the breast, pressing deeply into the abdomen, and cold abdominal compresses are other safe methods, though these will not always prove satisfactory.

NURSING THE CHILD.—The breast is not a single gland but fifteen or twenty glands bound together. Each of the smaller glands is arranged like a bunch of grapes, hence is called a racemose gland (derived from Latin *racemus*, meaning a bunch of grapes). They and their ducts are arranged radially, the larger ends outward. Together with blood-vessels, lymphatics and fat, they give the domelike enlargement known as the *breast*, *mamma* or *mammary gland*, surmounted by the nipple. The duct of each of the smaller glands extends to the center, where, beneath the nipple, it expands into an ampulla and then terminates in a little depression on the nipple surface, called a milk-pore.

The female breast is more richly supplied with lymph-vessels than any other gland in the body, there being five divisions of these: in the skin, in the subareolar tissue, within the gland, in the fat of the gland, and those beneath or back of the gland. The blood supply is from three sources or sets of vessels, and an equally abundant drainage is provided by numerous veins. The nerve supply likewise is from three sources. Thus the gland is amply provided for its remarkable function of secreting milk and is reasonably protected from circulatory troubles and infection. Yet it rather frequently suffers both kinds of disturbances. The exact manner in which milk is secreted is not understood.

Anatomy of
Female
Breast

During pregnancy the mammary glands undergo important and essential changes. They become the reservoirs for the natural food of the infant. In this period the connective tissue of the gland swells, minute sac-like enlargements (glandular acini) develop along the course of the ducts and fat is deposited between the lobes. The breasts become decidedly larger during the fourth and fifth months of pregnancy; the veins, which are not noticeable on the breast of the unimpregnated woman, become prominent and form a distinct plexus around the areola; the lymphatics and nerves undergo hypertrophy, and the nipple becomes elongated and sensitive. The areola becomes darker and elevated above the surrounding skin, and its follicles stand

out and exude moisture. Often there forms a secondary areola of round non-pigmented spots late in pregnancy, and frequently a milky fluid can be expressed from the nipple. The tension of the skin, especially in primiparae, causes silver lines to develop on the breast similar in appearance to those on the abdomen.

**Beginning
of Milk
Secretion**

It is now believed that the initial secretion of milk results from the action of a hormone, or chemical messenger, just as the digestive secretions are stimulated, though of course by a different hormone. The absorption of this hormone, which in this instance is produced by the fetus, has a specific influence upon the mammary gland, which is aroused to activity. When



First and second phases of an exercise for strengthening muscles of chest supporting bust. Beginning position as shown in first photograph. From this posture, bring arms across each other in front of body as shown in second photograph. Return to original position and repeat a dozen times or more as endurance permits.

the mechanism is once set into action the mere act of sucking by the infant serves as sufficient stimulus to keep the gland active in the continued secretion of the milk. Yet no real milk is produced during gestation. Even the secretion given for the first two to five days after childbirth is not true milk, but colostrum.

Various conditions influence the secretion of milk. The part played by the nervous system has been studied a great deal, yet the results are contradictory. No doubt there is some influence of the nervous system upon the glands, but not as much as formerly was supposed, as is determined by the effect of the hormone referred to above. However, it is known that "fright, grief, passion, excessive sexual indulgence, or any other excitement may entirely arrest the secretion or, if not arrested, the milk may be so altered in composition as to make the child actually ill." (Holt.)

The most reasonable view, then, seems to be that, though the nervous system may modify the glandular activity and its product, this activity is not dependent upon nervous influences. The harmful effects of emotions may be, and are more likely to be, not through the nervous system directly but through the blood, it being well known that strong passions and emotions may produce such internal changes as to poison the individual.

AGALACTIA.—This is absence of milk secretion after childbirth, though the term usually is employed not for total lack of secretion but for insufficient secretion, as complete absence after labor is rare. Sometimes the milk does not appear for days, or even for weeks, but there usually are evidences of functional activity, though often the quantity or the quality of the milk is so reduced as insufficiently to nourish the child. There may be deficiency of secretion from the first, or in the beginning the quantity may be normal but gradually and rather rapidly diminish.

Failure of
Milk Secre-
tion

It is estimated that between 10 and 20 per cent. of women are unable to nurse their babies because of insufficient milk or milk of poor quality. The indications of this deficiency are persistence of flabby breasts or large fat breasts, and dissatisfaction of the baby, which loses weight and has a general appearance of inanition. If the child does not make an *aver-*

age gain of five or six ounces a week for the first five months and a pound a month for the rest of the first year it is not properly nourished.

Lack of
Strength in
Civilized
Women

Among the conditions that may cause true agalactia are heredity, the breasts perhaps being normal in appearance but yielding no milk. Partial agalactia usually results from a general run-down condition in which there is fairly pronounced anemia, other conditions being fatigue, excitement, general mental turmoil, overfeeding, highly spiced foods, insufficient relaxation and sleep, and sometimes lack of confidence of the mother in her ability to nurse her baby. Compression of the breasts is a common cause. Frequent miscarriage may cause the condition, especially in women fairly advanced in age. The practice of early weaning in previous lactations may cause it, and especially avoidance of nursing previous babies. Acute fevers reduce the secretion, and may give rise to a condition that results in gradual permanent reduction.

A wholesome life, with abundance of fresh air, sunshine, moderate open-air and indoor exercise, and a well-balanced diet containing considerable quantities of milk, will do about all that can be done to increase the quantity of milk. There are no absolute specifics for this purpose. All malt liquors and alcoholic beverages are harmful, though pure malt may be used with benefit. Milk, nuts and the legumes, especially beans and lentils, also green vegetables and parsnips, are of considerable value as galactogogues (milk producers).

Local breast, abdominal or general massage may stimulate circulation and increase the milk secretion, and sometimes passing a proper electric current through the breast will help. Resumption of sexual relations before full involution of the uterus often seems to be the chief factor in the causation of reduced milk secretion. Internal secretion therapy often has a helpful influence, when the proper preparation is prescribed. Thyroid gland and placenta are the chief substances used. Many times milking the breast dry after the baby nurses, or allowing the baby to extract all the milk there is, will aid in stimulating breast secretion for future feedings. Many women who have limited quantities consider that complete withdrawal of the milk will hasten complete cessation of secretory activity. This is not the case.

POLYGALACTIA.—This is excessive secretion of milk. It is not abnormal except when it is sufficient to exhaust the mother or when the milk is secreted in large amounts after nursing has been discontinued. Normally the two mammae will secrete about three pints during twenty-four hours, but in some cases as much as six or seven quarts have been secreted in the same length of time. Naturally such an extreme oversecretion will produce anemia, emaciation and exhaustion in the mother, especially when the appetite is reduced or lost, which often is the case in this condition.

Cases of Too
Much Milk

In these cases the child should be gradually weaned, while all health-building factors should be employed by the mother. The breasts should also be compressed moderately with a breast binder. The amount of liquids consumed should be reduced and the foods mentioned above as aiding milk secretion should be avoided or reduced, though green vegetables can be taken in small quantities. In case the milk continues to be secreted it may be necessary to bind the breasts firmly. Milking the breasts should be done as little as possible, as this stimulates the secretion. Moderate doses of Rochelle salts, internally, may be allowed in some of these cases where response to other measures is slow, though compression will be the factor of chief importance.

Galactorrhea is somewhat similar to polygalactia, but in this condition there may not be excessive amounts of milk in the breast at one time, though there is constant flow between nursing periods. General loss of tissue- and nerve-tone and general poor health are the usual causes. The treatment should be such natural measures as will build up the general health and tone: plenty of relaxation and sleep, yet some open-air activity, cool tonic baths, sexual rest, cold applications to the glands and a wholesome diet of ample quantity, yet one that will not create an excess of milk. Liquids should be reduced, though not totally avoided.

RECOVERY OF STRENGTH AFTER LABOR.—Pregnancy and childbirth are such perfectly natural processes that the health and strength of a woman who passes through them should be reduced for only a short time. It is doubtful if there would be even this temporary incapacitation if women lived naturally at all times. The majority of women of cultured races pass

through a period of debility and infirmity following childbirth, and many are semi-invalids for a large part of the pregnant period. Civilization, not pregnancy or childbirth, should be held responsible for these unnatural conditions. The blame should be put upon individual errors in daily habits and individual idleness and self-pampering under the mistaken notion that the woman for the time being is "delicate." After pregnancy has been terminated a great many women are semi-invalids for many weeks or months and also many are asthenic and unhealthy for the remainder of their lives.

The new mother is not a sick woman; at least, she is not so primarily because of the ordeal through which she has passed. Lying in bed for many days "flat on her back" may reduce her strength appreciably, so that when she does get up she will feel as if she had actually passed through an illness.

It is not to be recommended that the woman be rash and get up the day after parturition. In most cases she would return to normal health more quickly and her later health would be better if she would begin within twenty-four hours after labor to arise for evacuations, to take certain exercises to be described later, and if within the week, perhaps four or five days, she were to be "up and about." In other cases, the return of vigor is best assured by extending the lying-in period to two weeks or more.

A woman should be as strong after pregnancy and childbirth as before. In fact, pregnancy should actually improve the health, for every process of the body is automatically accelerated by this state. The greatest preventive of debility and reduced health and strength after childbirth is the building of the highest degree of health and strength before and during pregnancy. Such a physical condition cannot be secured by inactivity, nor can any reduction of health and strength after childbirth be restored by idleness. Stagnation and inaction can only add to the abnormal condition. Hence as soon as is practicable the new mother should be up and about.

But it is not advisable to wait even for this arising from the childbed to begin restoring the strength. Even if there have been lacerations, certain exercises may be taken in bed from the first or second day after delivery. These exercises, taken during the time the body is recovering its former shape

and the internal organs are contracting, will appreciably aid these processes. The internal structures and stretched abdominal muscles that are not called upon to perform any function are not likely to recover their former strength, shape and functions.

Within a day or two exercise of the abdominal muscles should begin, not vigorously, but according to the strength of the patient and graduated as that strength improves. Raising

Begin Exercise Gradually

and lowering the abdomen (alternate protrusion and retraction) is an excellent exercise for



Standing with arms overhead, hands joined at palms, the body is bent over at waist as illustrated, from side to side. This movement may be repeated from a dozen to twenty times.

Exercise illustrated in second photograph is begun with hands held outstretched directly in front of shoulders. The body is then turned at waistline without changing the position of feet so that most of the movement involved is from the waist upward. Both of the exercises illustrated on this page are helpful to the waist muscles.

**Exercises
for the
Breast**

constipation and the return of the uterus and other structures of the pelvis to normal state. Various arm movements, such as crossing the arms over the abdomen and over the chest, raising them overhead, pushing one against the other across the chest and pressing downward upon the elbows placed at the sides, are excellent movements for stimulating circulation through the chest muscles and breasts and thus increasing the secretion of milk.

An excellent exercise for the entire body is lying on the side with upper arm forward and leg backward and continuously changing positions of these by swinging them across the body, making the movement sufficiently complete to rotate the spine at each swing. These movements should be repeated only a few times at first and not vigorously, but increased in number and in vigor as the strength returns. They should not be continued until the woman is tired.

Other excellent movements consist of raising the knees one at a time (later both together) to the chest, then extending the feet upward and slightly outward; sliding one heel up to the hip with pressure upon the mattress, then sliding it down until the leg is straight; holding one heel at the hip and moderately raising the hips, then both heels at the hips while raising the hips; pressing downward with the hips; raising the head; lying on the back with heels at the hips and pressing the knees together; lying face down and raising the hips; raising the legs one at a time; lying on one side and raising the upper leg. Hip exercises, however, must be very lightly done at first, for during several weeks before pregnancy the ligaments holding the large hip-bones together undergo softening, in order that there may be yielding during labor. Too strenuous activity of these joints, by exercise or walking, before the ligaments recover their tone may result in subluxations of the joints. But moderate action is an aid to their recovery of tone.

It usually is better at first to take only three or four movements at a time, taking two brief exercise periods a day for two or three days, adding one or two movements a day. The first movements may be passive, the woman being fully relaxed; that is, with the nurse making the movements while holding the patient's extremities. Of course, the woman herself will need to do the abdominal retraction and protrusion.

As soon as she feels that her strength is sufficient for active movements she may make the other movements herself, possibly starting merely by assisting the nurse. Within two or three days she should be taking all her exercise without assistance. No movement is to be done hastily or jerkily and straining movements are to be avoided. The exercises already mentioned, and those following, should be taken throughout the period of six weeks during which the uterus is undergoing involution, beginning with few numbers and few repetitions and increasing gradually, as already stated. More advanced exercises follow, these to be used only after the third or fourth day:

Advanced
Exercises

1. Lying on the back, raise only the head and shoulders from the mattress, with no attempt at sitting up.

2. First slightly bend the knees and then bring the legs together straight up, then straighten the knees; now bring one forward over the chest while partially lowering the other, then reverse, in a scissors movement. This should be done as easily as possible at first.

3. After slightly bending the knees and bringing the legs to the vertical, extend them farther toward the head so as partially to elevate the hips. Do not carry this movement too far.

4. With the heels against the hips and on the mattress, elevate the hips a few inches and lightly sway the hips from side to side. At successive exercise periods progressively raise the hips higher and sway them farther to each side.

5. Walk back and forth on the bed on the hands and knees. When able to get out of bed, walk about the room a little on hands and feet two or three times or more a day.

6. Sit up, preferably on the side of the bed, with the hands clasped behind the head; then force the head backward against slight resistance with the hands, at the same time elevating the chest and drawing in the abdomen. Relax and repeat a few times. Later, stand and stretch the arms overhead, raising the chest and drawing the abdomen inward and upward. One or the other of these exercises may be done several times a day. Even when lying on the back they may be taken. They have an excellent effect upon the circulation of the abdominal and pelvic regions.

Maintain-
ing the Form
in Mother-
hood

RECOVERY OF FIGURE AFTER PREGNANCY.—The fact that a great many women lose their girlish slimness, buoyancy, grace and vivacity after pregnancy evidently leads to the general belief that such loss is to be expected. There really is little or no necessity for a mother's becoming fat and flabby and losing her natural curves. Carelessness, through ignorance in many cases but through indifference or resignation in many more, is the cause of the undesirable changes that occur in most women after maternity. The following general routine will help the new mother to recover her figure and at the same time give her greater health. It may be begun within a week after delivery.

Upon arising, one or two glasses of water should be drunk. This may be hot or cold and may contain lemon juice, one-half lemon to two glasses of water. A good plan is to take the first glass hot and the second cold, though both may be at either temperature according to individual inclination.

Following this comes the morning bath—shower, spray, sponge, wet-towel or tub. It should be warm and of only two or three minutes' duration, followed immediately with a quick cool or cold application by means of shower or spray, sponge or splash. Then the body should be rubbed vigorously with a coarse towel until it is pink. The bath, as given, will have a tonic effect upon the skin and underlying muscles, organs and tissues, thus improving the appearance and functioning of the abdomen and of the entire body.

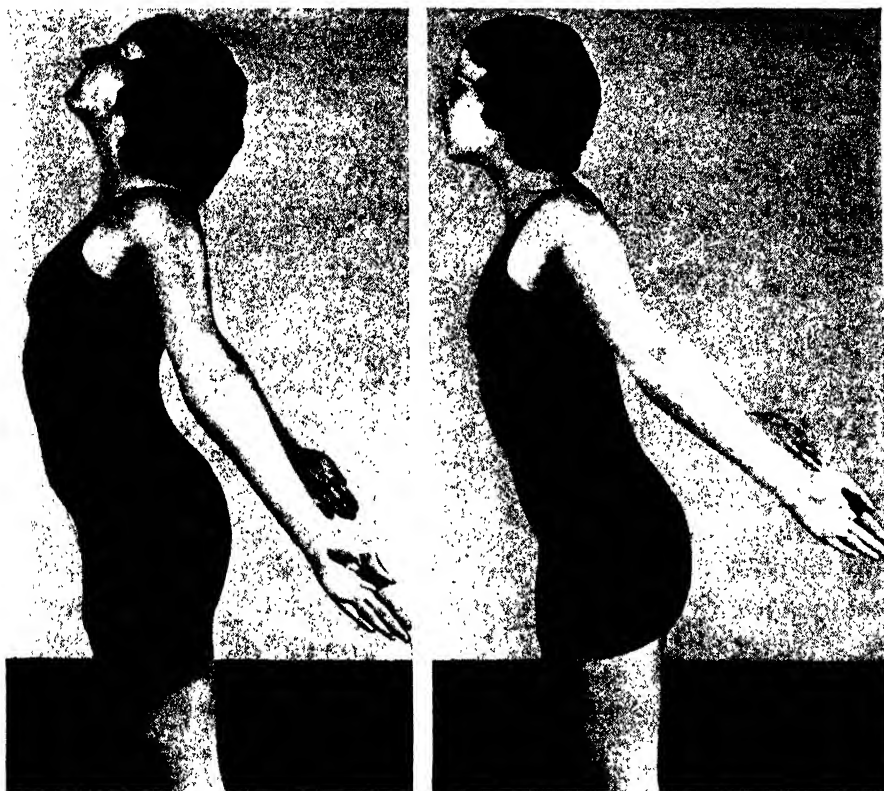
After the bath, the exercises should be taken, provided they were not taken before arising, which should be the rule for the first three weeks, or two at least. The exercises already given should be used, also those following, as well as others of a more strenuous nature that may be added from time to time after the first three or four weeks.

As soon as possible begin to take daily walks, gradually increasing the distance covered, but keeping well within the limits of strength. Among excellent exercises are some of the movements necessary in doing the regular housework, though fatigue must be avoided. Sweeping is good, having a favorable influence upon the abdominal and waist muscles and upon chest and breast. To be of greatest value it should be done equally from both sides.

So many women are weak in the lumbar section of the spine, rather in the muscles in this region, that it is important for most of them to be careful to avoid much backward bending. But where it is known that this region has no special weakness and when the abdominal muscles are not especially weak, backward bending and all rotations will be of benefit to the muscles of the abdomen and the waist. During backward bending the abdominal muscles should be held taut.

Suggestions have already been given regarding diet. As during pregnancy, so after this period there must be no overeating. Meals should be simple, with no artificial flavoring. Overeating and underexercising are the combined cause of loss of figure and loss of health of most women. Nothing but vital

Diet during
and after
Pregnancy



Two phases of a movement for strengthening the muscles supporting the breasts. Swing the arms back of the shoulders and bring them down as close to the body as possible, keeping the hands back to back as shown in first photograph. Then, keeping the arms in same position, move hands up as high as possible. After completing movement, bring hands together in front of chest at full length, then repeat entire exercise a dozen times or more as endurance permits.

food should be used; that is, there should be no demineralized, processed foods unless absolutely necessary—and it rarely is necessary. Sugar products should not be used; sweet fruits and honey should be used as substitutes, but only in moderation. They have the advantage, however, of being wholesome and containing other elements than those that fatten.

The diet should be sufficiently laxative to insure two bowel evacuations daily. If constipated, it often is a good plan to take an enema daily for a while, also once a week, regardless of the action of the bowels. The fountain syringe is the apparatus in general use for this purpose, but any other apparatus on hand may be used. The water should be neutral in temperature, the quantity ordinarily being from one to two quarts.

Regardless of how properly the mother lives, how healthy the baby is and how normally it nurses, there will be times when the mother will lose sleep because of the baby. Excessive or even frequent sexual indulgence will tend to deplete still more her vitality, a high degree of which is necessary for the production of a sufficient quantity and a high quality of milk.

In short, the nursing mother (or the non-nursing mother after childbirth) should live as hygienically as possible. If she does not, the harmful results will affect not only her but the baby, and also the entire family. By so living there should be not only recovery of whatever vitality, charm and beauty may have been lost during pregnancy and childbirth, but even a heightening of these.

KEEPING THE BREAST CONTOUR ATTRACTIVE.—One of the most pronounced changes in the woman as a result of pregnancy and the following lactation is loss of breast contour. In fact, the majority of women suffer more or less shapelessness of the bust from these influences. Much of this is unnecessary.

The youthful, virginal breast is firm and rounded. The size of the bust varies considerably in races and in individuals of the same race, it being ordinarily more voluminous in warm countries than in cold, and in moist and valley countries than in cold and mountainous regions. Some large women have small breasts, while some small women have large breasts. In



PHOTOGRAPH UNDERWOOD & UNDERWOOD—KEYSTONE VIEW

PLATE 52. Young American mother and her child on bathing beach. The inset proves that early youth needs no promptings toward a release from clothing.

Encyclopedia of Health: Volume II'

tall women the breasts are usually lower than in short women. The breasts of many city women are less well developed and functionally less active than those of their country sisters.

There naturally are different shapes and to some extent a difference in consistence and internal structure. But in the virgin and the nullipara (a woman who has never borne any children) the breasts normally are hard, firm and elastic. The consistency naturally becomes softer after the glands have attained full activity, especially after a period of nursing. After a woman has had several children they are inclined to become soft and flabby and drooping, or hanging, sometimes assuming almost a conical shape.

Prolonged nursing has a tendency to soften the breasts regardless of their original tone. Breasts, whether large or small, that are drooping before pregnancy will become more drooping after lactation. When firm before pregnancy and when there is excellent tone, the breasts may be brought back practically to original firmness and contour after lactation, provided nursing is not prolonged beyond a year and provided the general health is maintained at a high level.

Nothing will have an immediate and direct effect upon either structure, shape or functional activity of the bust. But the following exercises will have a beneficial effect through their influence upon the body as a whole and upon the muscles and circulation immediately beneath the breasts, and therefore upon the circulation and muscular tone of the breasts themselves. There are minute muscular fibers within the breasts that attach to the pectoral or chest muscles. By maintaining strong pectoral muscles the breasts will be kept firm.

Factors
Which Tone
Up the
Breasts

(1) Lying on the back with the arms at the sides, keep the arms straight and bring them directly upward until vertical; lower and repeat. Also the arms may be crossed over the chest, alternating one over the other.

(2) Lying on the back with the arms stretched upward alongside the head, keep the arms straight and bring them upward and then on downward to the sides, returning them overhead and repeating. Later when strength has been increased some light weight, such as a book, may be held in each hand during these two movements.

(3) Lying on the back, sitting or standing with one fist

held in the other hand in front of the chest, force one hand far to the side with the elbow as far backward as possible, relax a second, then force the opposite elbow to the rear. Repeat, relaxing a moment after each movement.

(4) Lying face down with the arms bent and the palms on the floor immediately beneath the shoulders, push upward with the arms until the elbows are straight, keeping the hips on the floor. Do the same exercise also with the fingers pointing directly inward, elbows flexed but well away from the body at the start.

Exercises
to Tone up
the Breasts

(5) Stand facing the wall with the hands on the wall at shoulder height, arms straight to the front, then bend the elbows slowly until the chest touches the wall, then force the chest back to upright position by straightening the arms. Later, as strength increases, place the hands on the wall high overhead, then slowly lean toward the wall until the chest touches or until considerable weight has been thrown upon the hands, finally force the body backward. Avoid straining on this movement; keep the abdominal muscles taut and perform the complete exercise only after considerable strength has been developed.

(6) Stand with the feet together with arms directly forward and the palms touching. Inhale fairly deeply as the arms are swung outward and backward, turning the palms upward when the arms are directly outward and keeping them upward until the arms are as far backward as possible, then reverse the movement, exhaling. This may be followed by, or alternated with swinging the arms backward and endeavoring to strike the backs of the hands together in the rear.

(7) Stand with the feet together and arms directly outward, then swing them across the chest in front of the chin. After a few times cross them in front of the abdomen several times, then cross them in front of the face while holding the head far backward.

(8) Stand with the feet slightly apart and reaching diagonally forward upward with one hand and downward backward with the other. Quickly change the positions of the arms by swinging the upper arm downward and the lower arm upward, twisting the body sufficiently to get a good spinal rotation and a stretch upon chest and abdomen.

(9) Stand with the arms flexed at shoulder height, elbows as far back as possible. Rotate the body far to the right and then to the left, keeping the rotation as much as possible above the hips.

(10) Stand with the hands behind the head with elbows out. Quickly pull the head forward and bring the elbows forward and together, at the same time taking a deep breath and elevating the chest yet

simultaneously contracting the chest and abdominal muscles.

(11) Stand or sit with a towel held against the back of the head with the hands in front eight inches or so apart, pull forward with the arms while resisting with the neck muscles; relax a moment and pull backward with the head while resisting with the hands, repeating several times.

(12) Stand in a doorway with the palms against the casing and try to force the body through while resisting with the hands, giving way slowly so that the body goes through the doorway, the elbows and shoulders far back.

(13) Stand in boxing position, one foot forward, arms



Standing
and Sitting
Breast
Exercises

Beginning with arms outstretched in position indicated, bring the right hand up and left hand down. Then bring left hand up and right hand down. Repeat entire exercise from a dozen to twenty times.

flexed at the sides, rapidly extend one arm (striking forward), twisting the body as fully as possible, then draw that arm back to flexed position while extending the other arm. Repeat several times, and make this movement energetic as soon as strength and energy permit.

Household
Exercises
for Mothers

As stated before, sweeping is excellent. It strengthens the chest muscles. Swimming is one of the best of all activities, as it develops the pectoral muscles while the breasts are freed from vertical stress, being somewhat supported by the water. Golf and tennis also are excellent forms of exercise, but are more or less one-sided. Volley-ball is valuable also, but basket-ball is too strenuous for many women. It is good only for young mothers, not those approaching middle life.

The bathing previously mentioned, the above exercises, short cold applications, such as quick cold splashes, to the chest or breasts, and general procedures inclined to raise the vitality and tone of all tissues will tend to restore the contour after the breasts have become relaxed, or prevent them from drooping if their tone formerly was good. A nourishing diet of natural foods, with an abundance of the mineral elements and vitamins, is absolutely necessary if breast tone is to be restored or preserved, though overeating of even the best foods will cause a condition that may result in flabby breasts. Milk should be taken in considerable quantities for its effect upon the general health and breasts of the mother, as well as for its valuable effect upon milk secretion and quality of milk for the baby. The strict milk diet may be used with benefit during the early part of lactation, or at any time, though this is not necessary unless there is some condition of the mother for which such a diet is advisable. Milk when used as a part of the diet is to be taken at the regular meal.

The ovaries and the breasts are somewhat antagonistic in action. Ovulation is suspended during pregnancy and usually during lactation when the breast is active. When ovulation begins again there is a tendency to reduce the breast to smaller size and firmer condition. In some cases it might be well to use internal secretion therapy with ovarian substance as the leading ingredient, especially where there is a condition of reduced energy and vitality that responds poorly to the general treatment suggested. Usually this is not necessary.

THE CHILD AND SEX LIFE

Section 5

IN A single nation of the world—The United States of America—approximately 2,000,000 babies are born every year. Of these more than 140,000, or some 7 per cent., die before the end of their first year. An additional 4 per cent. die before reaching the age of five years. This infant death rate is much lower than in former times, but it should be still lower. In fact, barring contingencies, death in infancy can be due only to ignorance and carelessness. Throughout the world an alarming degree of ignorance still exists concerning this subject that should have become a standardized science many generations ago.

Every young woman, before she seriously contemplates marriage, should thoroughly understand motherhood and all that it implies. Yet even the simplest rules that should be observed in the care of the expectant mother and in the rearing and training of infants are not understood by the majority of those who enter marriage and rear children. Until a girl is married she is too often taught to consider it immodest even to think of maternity except in the most abstract manner.

Education
for Mother-
hood

Agricultural colleges devote a great deal of time, attention and money to the teaching of animal husbandry to boys who expect to farm; yet in schools and colleges, even those attended exclusively by girls and young women (the majority of whom will eventually become mothers), the proper care of the future mother and of the child are subjects almost completely ignored. The actual care and feeding of animals, including the young, is a part of the training of the future farmer in the agricultural college, and today even of those who take the agricultural course in high schools. But even when, in a superficial way, the subjects of maternity and infant care are taken up in some of the more advanced women's colleges, little if any practical demonstration is given in the actual care of the mother and the infant.

1704 BOOKLETS ON THE CHILD

Government authorities are giving more and more attention to community and personal health, to hygiene and to child welfare, including proper care of the infant human animal. Much must yet be done. But conditions are so improved over even a generation ago that it is not necessary for mothers of today to remain in such complete ignorance as formerly of their highest privilege and duty. Hence it is not necessary that there be the great infant sacrifice which still results from such ignorance, much as such loss has been reduced since the beginning of the present century. Government bureaus issue highly informative and definitely helpful booklets and pamphlets on these subjects. Few people, however, know of this instructive literature, so it is necessary for them to obtain information from other sources. This is one reason for the publication of this extremely important matter here, where it will reach many who otherwise might remain in ignorance of the subjects discussed.

Instructions
for Pros-
pective
Mothers

State and municipal health departments and numerous community organizations have done a great deal also, toward educating mothers and prospective mothers regarding their own health and care, as it concerns motherhood and child



PHOTOGRAPH INTERNATIONAL NEWSREEL

Examination of the spinal structures of school children of a Western American city.

health. In large cities it is possible for mothers to receive free instruction and advice, and many mothers take advantage of these opportunities. But though it is in large cities that the infant death rate is highest and where such instruction and advice are most urgently needed, the same kind of aid is needed by mothers in towns, villages and rural communities. It is these who, for the most part, must be reached otherwise until such free health service is extended far more than at present. Physicians who serve these communities may be numerous enough and adequately trained in the treatment of disease, but not in maintaining and improving health, preventing diseases and disorders; so the women of these communities consult their physicians only in matters of disease, not in those of health and hygiene.

The work that has been done so far is extremely encouraging, yet we have scratched only the surface of the necessary constructive educational work. Much ignorance must yet be combated. Adult animals seem to be gifted with instinct that directs them in the proper rearing of their young, and immature animals also have instincts that aid them in their eating, play, sleep and other habits—without instructions from their mothers.

Humans have lost much of their protective instinct, and what has not been lost is overruled by what we are pleased to call intelligence. What instincts infants have they can give very little expression to, as these are suppressed as much as possible by their parents. Unfortunately, the human infant is helpless and wholly dependent upon its parents, or other elders, for many years. Hence the shockingly high rate of death among them is something for which the little ones themselves are not in any way responsible. In other words, the parents are to blame for the early death of their children, as well as for the poor health of those who survive. One of the crying needs of the world is for educational work among parents and future parents, so that children may be properly born and cared for and parents may derive from them the pleasure and satisfaction that should be theirs.

Human In-
stincts in
Infancy

It is necessary to free the birth as well as the origin and prenatal life of the child from the blight of prudery, mystery and superstition that still surrounds them. It is necessary that

the mother be *untaught*, as well as *taught*: she must be taught the harmfulness of many practices and customs handed down from Dark Ages, and she must be taught the *proper* methods of care. The young mother must become so familiar with her duties and responsibilities that she can accept and enter upon the rôle of mother with confidence and assurance, not with fear and trepidation or with complete ignorance as to these responsibilities and duties. The aim in preparing this section is to give her this needed information, this necessary confidence and assurance for her own sake, for the sake of her offspring and for the sake of the future of the race.

Cost of
Faulty In-
fant Feeding

INFANT MORTALITY.—Less than a century ago approximately 50 per cent. of all babies born in New York City died under one year of age. In all great cities the infant death rate corresponded more or less to this—a staggering loss of human life and more so when we realize that, barring accident, every child should grow to normal, healthy maturity if it is born with enough vitality to maintain life for the first few hours. The death rate of infants throughout the country, especially in the large and overcrowded cities, is now much lower than a generation or even a decade ago; but still many thousand infants perish unnecessarily every year before the age of one or two years. In addition to this loss of life shortly after birth, there are large numbers of still-births, most of which are preventable. A fetus that lives within its mother's womb until practically time for its delivery only to have its life terminated when on the threshold of its new life may be considered as a human life lost, just as much as is an infant that dies six months or longer after birth.

Considering the infant death rate in this or any other country as a whole it might not be thought excessive. But if it were not for the high death rate in some cities it would be less for the entire country. The infant death rate always is far greater in the crowded tenement and slum sections of cities than in less thickly populated sections. Crowding in squalor and unsanitary surroundings, with inadequate heating and ventilation, and improper feeding are responsible for most of the deaths.

Among the conditions responsible, directly or indirectly, for reduced vitality, and susceptibility to influences that cause

early death of babies (predisposing causes) are: unhealthy parents; the mother's excessive physical activity during the last three months of pregnancy (a cause of premature birth); self-neglect by the mother during pregnancy; inadequate or unskilled attendance at childbirth; hasty resumption by the mother of normal physical activities, perhaps even heavy labor, after childbirth; improper feeding; sexual and other personal habits of the mother during pregnancy and after childbirth; neglect of breast-feeding; improper feeding when breast-feeding is not employed; ignorance of child care, including ignorance of the harm of home medicines given for infant disturbances; and communicable diseases.

Occasionally conditions are so potent in effect as directly to cause death even without the influence of predisposing causes to weaken the vitality of the child. Usually, however, it is the combined effect of predisposing and direct causes that prove too much for the baby's vitality. The actual cause of death of infants naturally varies somewhat with the location, environment or surroundings and the season. But taking the United States as a whole the chief causes of infant mortality are: premature birth; respiratory diseases, such as pneumonia, bronchitis and tuberculosis (mainly during the colder months); digestive disorders, chiefly diarrhea (especially during hot months); injury at birth; communicable diseases. Among other causes are syphilis, erysipelas, convulsions and tetanus.

Diet and Infant Mortality

Comparatively few mothers know how often to feed their young or how long to allow them to nurse, whether the babies are breast-fed or bottle-fed. Every cry of dissatisfaction, irritation or pain from any cause is taken by the majority of mothers as an indication for feeding. The result is that infant digestive troubles develop or the children develop rolls upon rolls of fat that encumber their little bodies and make them susceptible to numerous disorders and diseases. Often the mother's diet is wholly inadequate in necessary food elements, especially the vitamins and mineral elements, and often even in amount, though the mother frequently is extremely toxemic from gross overfeeding; often, too, the mother is overworked or is obliged to overindulge sexually, and as a result becomes physically weak, nervous and irritable. The breast-fed baby naturally suffers from these conditions, which either deny its

body the elements that make it resistant to disease or produce nerve weakness and irritability that interfere with digestion and nutrition, thus making the child susceptible to numerous diseases. Whether the babies are breast-fed or bottle-fed, many mothers, devoid of all instinct and training, still give them unsuitable food, food that they should not taste until many months later if at all. Perhaps the food, particularly milk, is not fresh. Not to mention cough and soothing syrups, "digestants" and laxatives, babies are sometimes given tea and coffee, perhaps solid food from the mothers' own tables (often after softening it in the mothers' own mouths, regardless of perhaps a grossly unsanitary mouth condition).

A prolific cause of infant mortality is failure to nurse babies at the breast. No other food is a perfect substitute for mother's milk, this being the only natural baby food. Many mothers cannot nurse their young, because of inadequate milk, disease, or physical handicap. Many others consider nursing a nuisance, a drain upon their vitality and a detriment to their figures. Others honestly endeavor to breast-nurse their babies and perhaps succeed in doing so for some time, only to find that their babies have become weakened and sickly because of milk deficient in quality, perhaps also in quantity. Many such babies die before a suitable substitute can be adjusted to their weakened condition. In these latter cases the mothers' health requires attention. Often this is the case even when the milk is seemingly adequate in amount and reasonably satisfactory in quality.

Quality of
Mother's
Milk

Many infants die during the first month or within a few weeks of birth because the mothers did not have proper care before childbirth, perhaps during and after that event. The mother may have had reduced health and vitality and these conditions may have affected the milk, even to the extent of making this totally unsuitable in quality or quantity or both.

If we start with healthy parents, if during the prenatal period the mother's health is maintained at the highest degree possible, if the child is provided with a clean and airy home and is naturally and properly fed, it should pass safely through babyhood and childhood. Hence in order to save the babies the chief problems to be solved are the education of the parents, particularly the prospective and the actual mothers, provision

of facilities for proper care of the physical condition of mothers and babies in all communities and the bettering of living conditions.

Measures whereby these problems may be solved include: a general health consciousness created in all people, men and women alike, by the broadening of our health education; care of the mother during pregnancy (prenatal care of the child), which involves better hygiene and a well-balanced diet for the pregnant woman, freedom from uneasiness or fear and weakening labor on her part; hospitals for premature babies; health centers and educational clinics for proper instruction of

Education to
Save Babies



Baby's bath is an important adjunct to its healthful growth and development.

mothers and prospective mothers; training of these women to patronize these centers or consult their own physicians on health matters, particularly as these relate to pregnancy and mother's and child's health after childbirth; public health nursing for the poorer classes; encouragement of breast-feeding, and better artificial feeding when breast-feeding is impossible or must be discontinued; more competent care of children during sickness; fully supervised milk supply so as to insure pure, clean milk; better hygienic conditions and better housing, with elimination of overcrowding in dwellings; and perhaps better care to insure against communication of diseases, by isolation of patients with recognized communicable diseases and with diseases having discharges that may spread disease.

But if some of the above measures are to be carried out properly another measure is necessary—a more logical consideration of diet and of treatment by the rank and file of physicians who, after all, must be at least partial guardians of the health of infants and children.

**Baby's First
Needs**

BABY'S FIRST NEEDS.—The human infant, like the young of many other animals, is wholly dependent upon its mother to meet its every need. Not only are its intellectual faculties as yet inactive, but its voluntary physical functions are without coordination and are totally unable to serve it. Hence it requires much attention and care, especially if it is to grow and develop properly in mind, body and soul.

The First Cry is not one of pain, but a successful attempt of the new being to use its own lungs. The new medium in which its body is suddenly placed, the change from the waters in which it has lived, and most important, the abrupt cutting off of its supply of oxygen from the mother's blood, cause the sudden intake of air that opens its lungs and precedes the cry—the most welcome sound a mother can hear. In case no cry follows, and the child fails to breathe, its respiration must be established immediately by artificial methods. This is work for the attending physician or the midwife.

The First Need Is Sleep. The baby has gone through a more or less difficult ordeal in coming into the outer world, so it should be prepared for its first sleep with as little disturbance as possible. After the cord has been tied, cut and dressed

as already explained, the infant may be anointed with a little warm olive oil, which protects the skin and aids in softening, loosening and later in removing the greasy material (vernix caseosa) which frequently coats its body. It should then be wrapped warmly in a soft woolen blanket and put in its crib or bassinet in the quietest part of a dimly lighted, thoroughly ventilated but warm room and allowed to sleep.

It is a good plan to give the baby a short nursing after its first sleep, which usually will not be longer than two or three hours. This nursing may be for five or ten minutes, depending upon the manner of nursing and the freedom with which the colostrum may be extracted from the breast. Some infants even at the first nursing feed greedily, while others do so without zest.

The First Bath. A good time for the first bath is after the baby's second sleep, the sleep following the first short feeding. With inexperienced nurses, and often with those who have taken care of several new-born babies, the practice is to bathe a baby as soon as its navel is dressed after birth. Many mothers insist upon this early bath. There may be no harm in giving the bath at this time, especially if the baby is very vigorous; but sleep generally is to be preferred after the strenuous experience through which the baby has just passed. After this sleep the baby may be bathed before being put to the breast, or bathed and put back in its crib for another short sleep; but the better plan is to bathe it after the second short sleep, following the first feeding.

**The First
Bath—
Requisites**

Some authorities delay the first bath for a full day or even longer, on the basis of giving the baby time to become somewhat stronger and more accustomed to its new environment. Their practice is to spread olive oil liberally over the body, either leaving this as a skin protection and a solvent of the vernix caseosa, which may cover the body, or gently wiping off any excess. Other authorities soak cheese-cloth in warm milk and wrap this about the baby and then wrap a warm blanket around it. Milk is soothing to the skin and also serves to dissolve the vernix caseosa. It may be an aid in preventing skin affections. Either plan certainly will be better than using a poor grade of soap or too much soap.

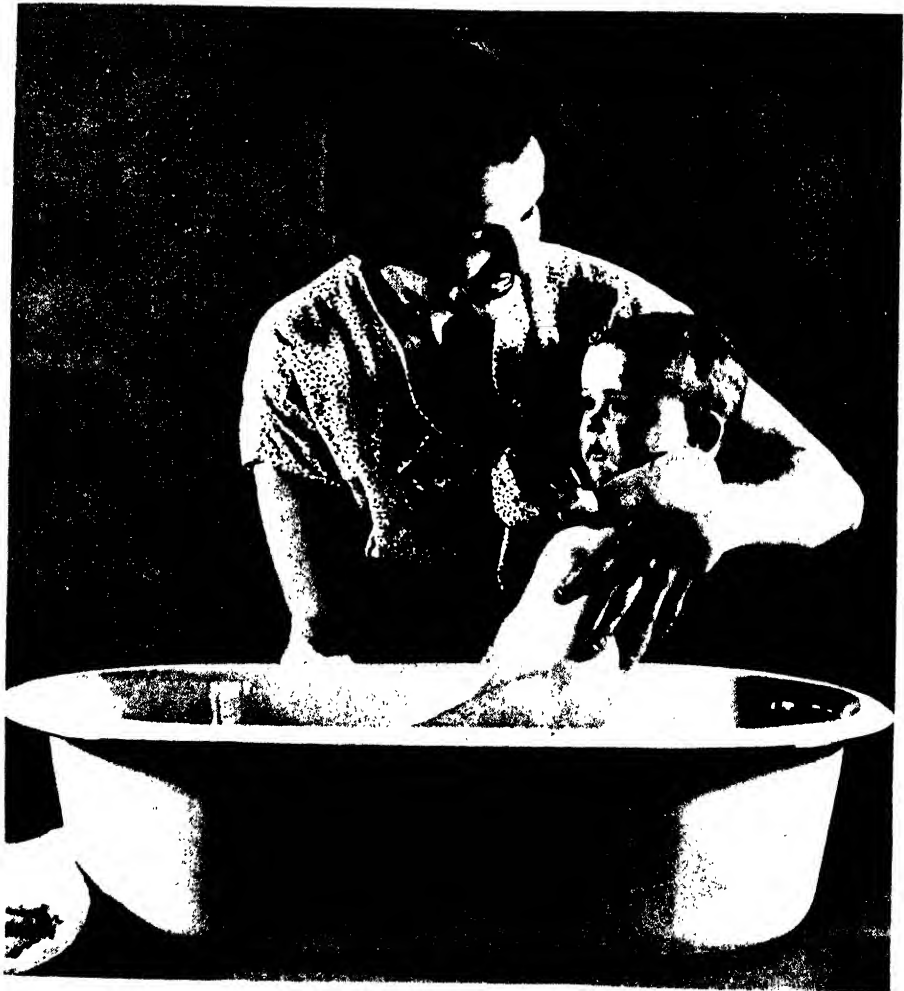
**Vernix
Caseosa**

Usually the vernix caseosa will all be removed within two

or three days. On some babies there is practically none of this smegma, only a little in the groins, in the crease between the buttocks and in the neck creases, perhaps also about the head; on others it may cover every part of the body. If it is not removed it may cause irritation and possibly skin inflammation.

Bathing
Baby

Whether given within a few hours or after a day or more, the water for the first bath should be warm, at approximately 98 degrees F., determined by a thermometer or, perhaps, by the nurse's elbow. The room must be comfortably warm, but well ventilated, though the baby must be protected from currents



Enjoyment of the bath by the child is usually a matter of instinct and should not involve a great degree of training.

of air. Gauze, pieces of old linen, absorbent cotton, a soft sponge, or any other soft, clean material may be used for washing the baby's skin. Only the best, pure, white Castile soap should be used. The mottled Castile contains more or less impurities not rendered out in the process of manufacture. The soap may be applied to the bathing material, to make a good lather, or it may be agitated in the water till the latter is soapy.

Separate cloths should be used for face, body and buttocks, and these should each be discarded and others taken for rinsing the body after the bath. Even if a sponge is used for the general bath there should be a smaller sponge or else small pieces of soft material for the face. If sponges are used they should be boiled before and after the bath, and put in the sun to dry.

The drying of the baby should be done with an old soft towel, patting rather than rubbing, unless the latter is done very gently where necessary to remove some of the vernix caseosa. Often this substance cannot all be removed for two or three days, though what remains after this time usually will soon drop off as scales.

Drying the
Baby

Bathing should be done as quickly as possible. One of two plans may be followed. In one the body is kept covered except for the part being bathed; in the other a basin of water or a small canvas bath "tub" may be used and the child immersed in this. If there is the slightest suggestion of chilliness in the room the former plan is the better. The latter is excellent when the child is robust; otherwise the former plan is preferable. In the former the baby may lie on the nurse's lap or on soft material on the bed, on a table, or on the canvas top of one of the modern nursery bath arrangements.

In the case of a premature or very feeble infant it is best not to use soap and water at all for the first few days, simply anointing the baby's body with olive oil and gently wiping it off. This may be continued until the gain in weight and growth indicate a sufficient increase of vitality for the infant to endure the regular bath.

ARTICLES NEEDED FOR THE BATH.—Pure, white Castile soap, soft sponge or square of soft old linen, soft towels or soft old linen cloths, bottle of boric-acid solution and small dish to

contain this, bath thermometer, sterile absorbent cotton with which to apply the solution are required. If a baby's bathtub is used it should be placed at sufficient height during use to prevent stooping. In giving a tub bath it is important that the baby be held properly, for its comfort and enjoyment of the bath will depend considerably upon the manner in which it is held. Support its head with the wrist or forearm, with one hand extended under the back, the other hand holding the legs and hips for immersion. After placing the infant in the tub the second hand is used to bathe the baby.

After the bath lift the baby out in the same way and wrap it immediately in a towel. This will soak up much of the water. Cover the baby with a second dry towel and dry by patting and by moving the hands over the towel, then rub the dry body, especially the back, gently but thoroughly with the bare hand. This is strengthening and invigorating. After the second month the nurse's or mother's hand may be dipped in slightly cool water for this rubbing, thus giving the baby a tonic bath further to invigorate it after its warm bath and to begin its use of cold water in the most comfortable and most moderate manner.

Powdering of the baby's skin after the bath is not to be recommended as a routine measure, because powder clogs the pores of the skin. But sometimes the parts about the buttocks, the anus or the genitals become red, raw and inflamed, from acid bladder or bowel excretions, sweat or heat. For such cases a fine, pure cornstarch is perhaps the best. Do not use the scented powders. Olive oil may be recommended to use on the skin in these conditions. It will protect against the excretions and will assist in the cure of the condition.

Toilet of
the Baby

As a further method of "hardening," to aid in assuring greater hardihood of the child, a slightly less moderate means of giving the tonic bath than by the wet-hand friction may be employed after the end of the third month, provided the child has progressed normally during this time. After giving the regular warm bath, lift it out and immediately pour over it some water slightly cooler than the bath water. Every day or two the second water may be made a little cooler, preferably only about a degree at a time, until a temperature of from 80 to 75 degrees is reached.

If the baby is not gaining, is losing in weight, or is of feeble constitution, or if its powers of reaction are poor, hardening should be attempted only by the cool wet-hand method. The tonic bath should not be wholly dispensed with even in these cases; it will invigorate the entire organism, improve digestion, assimilation, nutrition, circulation, resistance and all other processes; and the child will enjoy it.

In giving the bath certain parts of the body should receive special attention. At birth the attending physician or the midwife, in all probability, will have placed a drop or two of one-half per cent. solution of silver nitrate in each eye, to insure against possible infection of the eyes by germs lying latent in the birth canal, which possibly would cause blindness of the baby later. But during the bath the nurse should have a small dish containing boric-acid solution for cleansing the eyes and the mouth, also the genital organs. A small pledget of cotton or a square of linen or gauze should be used for each eye and one each for the mouth and the genitals, each piece being discarded after use. These cloths should have been boiled, steamed or baked before being used.

Eye
Solution

A solution of boric acid (one teaspoonful to the pint of



The use of a clinical thermometer in baby's rectum to obtain temperature, is here illustrated.

boiled water) should be made and bottled and kept on hand for use regularly. The mixture must be stirred or shaken until the acid is dissolved. The bottle should be kept well corked and its mouth cleansed each time before being opened. Only the amount of this solution that will be needed at any one time should be poured out. If there is any excess it must be discarded. In case the eyelids tend to adhere use a little vaseline.

As to the care of the navel there are differences of opinion. Some authorities dress the cord at childbirth and then advise that it remain untouched until it drops off. This would necessitate bathing the child piecemeal or a part at a time, rather than by immersion. The majority, however, advise daily dressing by the nurse and some physicians even attend to the matter themselves.

Dressing the Navel

Daily dressing of the navel is to be preferred to the other practices. Small squares of old linen or of gauze, a few layers of either, are used. In the center of the square a hole is cut, the stump of the cord is drawn through and laid on top of at least one layer so as not to be in contact with the body. This dressing is held in place by the abdominal binder of flannel, though this binder should be only snug enough about the trunk to remain in place. The daily dressing of the navel should continue until the stump drops off, usually within a week. The cloths used for the dressing should be dry, but previously sterilized by boiling, steaming or baking. They may be liberally oiled with olive oil, or spread with stearate of zinc.

First Nursing

NURSING.—The first nursing should not be delayed overlong, for this nursing has a good effect upon both the baby and the mother. The first breast secretion is rich in *colostrum*, a fatty substance with a laxative effect upon the baby's bowels, aiding to expel the meconium, the greenish first intestinal discharge of the new-born infant consisting of bile, mucus and epithelial cells. Through its direct effect upon the breast and its indirect effect upon the uterus, this first nursing also causes the uterus to contract more than otherwise, thus preventing postpartum hemorrhage.

The breast secretion of *milk* usually does not begin before three days. For this reason the baby should not be put to the breast during this time oftener than three times within each twenty-four hours. Enough nourishment is stored up within

the body to protect the baby through this period of infrequent feeding. A small amount of warm boiled or distilled water may be given the baby occasionally, either from a nursing bottle or a spoon. After the milk is secreted by the breast the nursings may be according to the schedule given later.

HOUR FOR BATHING.—The time of day for the bath depends, of course, upon personal conditions. The bath should always be given while the stomach is empty. Hence perhaps the best time is immediately after the nap taken following the first nursing in the morning. This perhaps will bring it about nine or ten o'clock. By the time the baby is bathed, dressed, and ready for the long nap which should always follow the bath, the little one usually will be ready for the second meal of the day. This bathing hour is usually both convenient for housewives and a desirable hour to select.

CARE OF SPECIAL ORGANS.—*The Eyes.* As already stated, the eyes usually are protected from infection at birth by a solution of one-half per cent. of silver nitrate in each eye as soon as possible after delivery. Some physicians prefer a weak solution of protargol or argyrol (silver preparations), or a 20 per cent. solution of hydrogen peroxide. In washing the eyes with the boric-acid solution (advised under *The First Bath*), the baby may be laid on either its back or its side, a piece of absorbent cotton being placed across the bridge of the nose to prevent the solution running from one eye to the other. Always wash from the outer angle of the eye toward the tear-duct, or inner angle. Exposure to strong light, either natural or artificial, should be avoided. In the case of very young babies the nurse should not wear bright colors. Objects should not be held too near the baby's eyes, as the child may become cross-eyed because of its inability in early life to direct the vision at proper angles and secure exact focus.

Care of Eyes
and Nose

The Nose. Keep the baby's nostrils clear and clean. This can be done by rolling tightly a small piece of absorbent cotton, dipping it in a solution of boric acid, and inserting it in each nostril and giving it a few turns. The best time for this is immediately after the morning bath. If there are any sores, scabs or crusts in the nose, first cleanse it with the boric-acid solution, then dip the cotton in a little vaseline and gently smear the inner surfaces of the nostrils with this emollient. If

1718 CARE OF SPECIAL ORGANS

the nostrils are clogged with mucus or crusts a drop or two of albolene in each will tend to clear them out.

Mouth
Care

The Mouth. Usually the breast-fed baby will not need any special care of the mouth. But for the first few days at least it is a good plan to wipe out the mouth with linen dipped in boric-acid solution after each nursing, or a mild salt solution (a teaspoonful of salt to 8 ounces of water) may be used for this. There should not be enough of either solution on the linen to drip into the baby's mouth. The linen should be



The resistance the infant can exhibit when he chooses to hold himself rigid against the arms and hands of grown-up folks, proves the native strength with which he is endowed. Regardless of the strength that the child exhibits, one hand should be used fully to support its back whenever the infant is carried in arms.

wrapped about the finger for this mouth cleansing, or a roll of absorbent cotton around a wooden applicator or a strong tooth-pick may be used. The finger method is best. Care of the mouth usually is more urgent when the baby is artificially fed, as there is then more likely to be stomach sourness and regurgitation. When the little teeth come in they may be cleansed in the same manner as advised above and with the same solutions.

Unfortunately, the inclination of a great many people is to kiss babies on the mouth, regardless of their own foul mouths from decaying teeth, diseased tonsils, decomposing food remnants and other causes. Do not allow your baby to be kissed on the mouth by anyone. It is an injustice to the baby and even if it were known not to be dangerous no one should wish to do it. If members of the family must kiss the baby confine the kisses to the cheek or the forehead. Never let strangers kiss your baby at all.

In case baby's lips become chapped it is advisable to apply a small amount of olive oil on them, while the baby is asleep, as at this time it will not be so inclined to draw its lips into its mouth.

The Ears. Baby's ears require special attention. Often wax collects. This may make its own exit, but sometimes it is necessary to help Nature. Whether or not there is an excess it is advisable to cleanse the ears at the time of the bath. No special treatment is necessary for cleanliness of the external ear. But for the ear canal it is advisable to use a piece of soft linen, twisted into a cone, dipped in the warm suds of the bath and then inserted into the canal and turned around a few times. Use a dry cone in a similar manner to dry the canal. Proper cleansing with a good grade of soap, combined with suitable diet and insurance of normal elimination, may prevent the development of eczema around the external ear. After proper cleansing this part may be dusted with stearate of zinc in case eczema appears.

Care of
the Ears

When the baby is laid on the side, which is a frequent sleeping position, be careful that the ear against the pillow is not doubled back. To prevent this place a hand against the ear while putting the baby down, then after the head is on the pillow gently draw the hand toward the back of the head. For the sake of the ear nerves and the general nervous system,

toys that make loud and hideous noises should be kept from the nursery or baby's room.

Care of Scalp

The Scalp. Often baby's scalp is the only blemished part of its body, whereas it should be as free as any other part. A yellowish deposit, due usually to adhering vernix caseosa, often is seen on a baby's head. Frequently there also is a "milk-scurf" or "milk-crust," a collection of large dandruff scales. These conditions usually indicate lack of cleanliness. In either case the baby's head should be rubbed well with oil which should be allowed to remain on for several hours, after which it should be bathed well with warm water containing powdered borax—a teaspoonful to a small basin of water. This will remove these unpleasant crusts, though without proper care thereafter they are likely to return. The borax should not be used after the crusts have been removed; soap and water will be sufficient to keep the head clean.

Great care should be exercised in the use of comb and brush on the head of a baby or young child. A comb is not necessary, and the bristles of a brush should not be stiff or used with force. If a comb is used at all it should be held almost flat against the head so the teeth cannot injure the scalp. Unless the brush bristles are fairly soft it is advisable thus to hold the brush so the bristle ends do not press upon the scalp. A mother may determine approximately the force to use on baby's scalp by first using the brush upon her own cheek.

CARE OF THE BOWELS.—Many mothers are overzealous in maintaining external cleanliness while ignoring internal cleanliness of their babies. Of course, many mothers provide neither external nor internal cleanliness. Internal cleanliness is far more important than external cleanliness. Regularity of the bowel movements is highly important. Particularly in an infant and a young child the character of the stools indicates to an appreciable extent the condition of the alimentary canal, the state of digestion, and the general health of the child. The new-born baby usually has a movement of the bowels immediately or within a few hours after birth and two or three a day thereafter for the first week or ten days. During the first few days these movements are dark (greenish or blackish) and sticky. They consist of meconium rather than ordinary fecal matter. But after the baby begins to take nourishment the

stools change in character, and become smooth, soft and yellowish. Healthy babies have two or three or more movements a day. The character is more important than the number of stools.

Constipation sometimes develops regardless of care given. This condition should always be avoided if possible—and it usually is possible. When it does exist it can be relieved by small enemas of plain water at a temperature of 98 to 100 degrees. For this treatment a baby rectal syringe with the hard-rubber nozzle may be used, care being taken not to make too sudden or forcible pressure upon the bulb, as the water should be injected gently. Care in giving an injection is even more important with infants and children than with adults.

Constipation in Infancy

Instead of the bulb syringe an ordinary fountain syringe may be used for the baby, having the smallest hard-rubber tip or nozzle on the tubing. The bag should be only a few inches above the baby's hips. Even then it is advisable to control the force and speed of the water flow by pinching upon the flexible tubing with thumb and finger. In using bulb or fountain syringe the air in the apparatus should be allowed to escape, by pressing upon the bulb or opening the tube cut-off until water appears. Air injected into the rectum will cause the bowels to evacuate the water before it has had time to prepare the feces for expulsion; besides, it is inclined to cause pain or discomfort. The baby requires only an ounce or two of water to produce satisfactory evacuation. This small quantity permits repetition in case results are not obtained within a few minutes.

White Castile soap suppositories may be used occasionally. They may be whittled to the side of a lead-pencil at the large end and made cone-shaped, about three-quarters of an inch long. The suppository should be inserted gently. This may be done with the baby lying face down across the mother's knee. Moistening the suppository with water will permit it to enter the rectum past the gate-muscle or sphincter. Gluten suppositories or small glycerine suppositories may be used in the same way. The former are the safest of suppositories, as they are least likely to irritate. Their action is somewhat slower than that of the other suppositories mentioned, hence it is a good plan to insert one (when necessary) in the morning after the



PHOTOGRAPH KEYSTONE VIEW

Personality and individual traits are not absent from human offspring even in early infancy.

Overcoming
Constipation

bath. Within a couple of hours their effect should be apparent. In obstinate cases a small amount of warm olive oil may be injected into the rectum by means of the small baby syringe.

Of course, the best way to correct constipation is the natural way—by diet. Fruit juices are excellent for keeping the bowels active. A baby as young as two or three days old may be given teaspoonful doses of orange juice diluted with an ounce or two of water in a nursing bottle. Prune juice also may be used, but preferably not before the first month or two. Neither of these juices is to be sweetened in the least.

Diet is particularly important in case of chronic constipation. When the infant is breast-fed the mother must look after her diet closely, for she must have a well-balanced diet containing an abundance of the laxative foods—and her own bowel activity must be kept normal.

If the baby is bottle-fed a little cream added to the feeding often will overcome constipation in the early months. But care must be taken not to disrupt the digestion by making the

diet too rich with cream. The addition to the milk of strained oatmeal gruel or a strained gruel made from bran or some whole-grain cereal may help overcome constipation; but a child should have no starch until it is well over one year of age, hence this method, except in the case of gruel made from bran, which is starch-free, is scarcely to be commended for infants.

Abdominal massage is helpful for constipation, this to be given gently and clockwise. The movement is made in small circles beginning in the lower right "corner" of the abdomen, ascending the right side, crossing to the left, then down the left side to the lower left "corner." To make sure of the direction, place a watch alongside the baby with "twelve" nearest the breast. Start the movement at "eight" and carry it around to "four." Give slightly increased pressure on the part of each small circle directed toward the bowel outlet. The hand does not slide over the skin but moves the abdomen until it is necessary to carry the hand forward along the abdomen.

After a few circles in this manner the movement may be reversed a time or two, starting on the left side and completing the movement on the right side. This massage may be given twice a day, even three times a day, but it should be given at specified times and regularly at these times daily. It must be remembered that the movement in such treatment is a gentle one.

Massage of
the Abdomen

Diarrhea is one of the most frequent disorders that affect babies and young children. Under neglect or usual treatment it is stubborn to yield and may continue until the baby is a "mere shadow" of its former self or, as not infrequently is the case, succumbs. Indigestion resulting from wrong feeding is the usual cause; in fact, may be said to be the only cause. In some cases it seemingly results from taking cold or from several days of hot weather; but even in these cases the underlying cause is wrong feeding.

The wrong feeding may be through wrong preparation of the modified milk or wrong diet of the mother, excessively large nursings or too frequent nursings, or all of these. Constipation may precede an attack of diarrhea. In any case the frequent and watery stools are necessary to remove irritating substances from the bowels. Regardless of how severe the diarrhea may be, its purpose is protective.

Diarrhea in
Infancy



PHOTOGRAPH PACIFIC & ATLANTIC

Caution is important in putting the infant to tests of this sort. This particular test should involve the grasping of baby's hand firmly before lifting him to the position shown. The child should suspend itself as here shown for only a moment.

Bottle-fed babies are much more susceptible to this disorder than are breast-fed babies, because artificial feedings are subject to greater degrees of abnormality than is breast milk. Summer is the most frequent time for diarrhea, because of depleted vitality from the heat and because of rapid changes in the substitute food for babies.

Often babies lose weight rapidly during an attack of diarrhea, resulting from the

loss of fluid from the blood and the tissues. Their skin becomes wrinkled and they look shrunken and withered.

Diarrhea may be moderate, with five to eight stools a day, or extreme, with as high as thirty or forty stools daily. The stools may be semi-liquid or they may be watery. Usually they are foul-smelling, but sometimes are comparatively odorless. They may be small in amount, or surprisingly copious. The usual colors of diarrheic stools are greenish, yellow-green, whitish, and clay-colored.

Dysentery, or inflammatory diarrhea, causes extremely frequent stools, which contain large amounts of mucus and often considerable blood. Weight is lost rapidly, the body often becoming wrinkled and shriveled within twenty-four or forty-eight hours, the skin cold and clammy, and emaciation

and weakness developing rapidly. These conditions result from the extraction of large amounts of fluid from the body.

The *treatment* of diarrhea and dysentery is simplicity itself. All that is required is to assist Nature in clearing the food canal of irritating and unwholesome substances. Therefore, withhold all food except water until the bowel action and stools have returned to normal. Complete abstinence from food will not cause the rapid and extreme emaciation that continuation of the bowel looseness will produce. The baby should be given all the water it will take, by bottle. Further assistance may be given by enemas of boiled water at about 98 degrees temperature, though these are not absolutely necessary.

Diarrhea and
Dysentery
Treatment

Never give chalk, bismuth, paregoric, laudanum, opium or other medicine to check the maladies. They suppress Nature's curative process. It should be remembered that the disease is not the diarrhea nor the dysentery, the irritation that causes these being the real trouble. Hence checking the diarrhea checks Nature's cure. If the baby is bottle-fed the first several feedings after the diarrhea has disappeared should have no sugar (whatever the nature of the sugar used), and the cream should be reduced.

Care must be taken to keep the diapers changed, removing each as soon as soiled. There must be careful local washing at the time of each diaper change, using boiled water containing boric acid. The skin about the buttocks may be anointed with oil, or there may be light sprinkling with cornstarch if the parts become excoriated or irritated from the discharges.

Regularity of habits of the child is highly important, as well as a great convenience to the mother. When the child is trained to use the chair for bowel movements the unpleasant necessity of washing soiled diapers can be at least partially avoided. It is well to start the training as early as the sixth month. Often the mother can train a baby to have bowel movements at the same time each day by holding it upon a small chamber placed between her knees, with its back supported against her chest. When the chair is used later the front cross-board should be tightly fastened, and in the early months a small pillow or pad may be placed at the baby's back for support.

Training in
Bowel Move-
ments

As a rule, in training the child it will be necessary at first

to use a small enema of warm water or a suppository, to induce a movement and lead the child to understand the purpose of the position. This usually will soon establish regularity in the child's evacuations and their aid then can be discontinued. As a rule, the best time to place the child upon the chamber is immediately after a full feeding, when the bowels are more inclined to move naturally. It should be done at the same hours of the day without fail.

Care of the
Genitals

Care of the Genitals. Care to secure and maintain scrupulous cleanliness of and around the genitals from the first is of utmost importance. Such serious conditions as incontinence of urine, convulsions, masturbation, also continued bed-wetting and other serious nervous and physical disorders may originate from retention of irritating smegma under the foreskin of a male baby or under a hooded clitoris of a female. Shortly after birth of a male infant the head of the penis (glans penis) should be fully exposed by turning back the foreskin as far as possible. Usually this can be done without trouble, though occasionally a slight tear of the foreskin may occur during this process. It will heal readily if kept clean.

If it is impossible to retract the foreskin to the full extent so that the parts beneath can be properly cleansed it may be necessary to make an incision in the foreskin or even to have the infant circumcised, as is the custom with male babies of Jewish birth. Whether or not either of these operations is necessary, it is important that it be possible thoroughly to cleanse the glans penis and the neck of the penis regularly to get rid of the offensive secretion.

Occasionally the foreskin can be retracted but cannot be pulled forward again, owing to sudden swelling. In a case of this kind oil the head of the penis well, squeeze it with the thumbs to reduce its size, then attempt to draw forward the foreskin with the first and second fingers of both hands. If this procedure fails, then wrap the glans penis in lint and squeeze firmly but gently until the swelling disappears. The application of cold to the penis sometimes helps, by making this organ shrink. Occasionally cutting the constricting band of foreskin will become necessary.

Circumcision may be called for when the foreskin cannot be retracted and the smegma collected beneath it cannot there-

fore be removed. Adhesions sometimes prevent the retraction of the foreskin. Sometimes the opening in the foreskin is so small that urination can be performed only with difficulty. When a long foreskin cannot be properly retracted, it is likely to cause more or less severe nervous symptoms in the child, even causing convulsions in some cases.

Adhesions can sometimes be overcome gradually by the gentle pressure of water or boric-acid solution introduced by means of a small syringe into the space between the prepuce (foreskin) and the glans, through the regular opening of the prepuce—but not into the urethra. This treatment offers the safest means of dilating, and should be practiced daily until the difficulty has been overcome.

Adhesions of
the Genitals

If the clitoris is bound down by adherent tissue (hooded clitoris) it is important that this condition be relieved as soon as possible, for it may have a marked adverse effect upon the future health of the little girl. This unhooding of the clitoris can sometimes be done merely with the fingers of the physician, though in some cases the procedure is somewhat more complicated. In any case its correction is a simple matter, and it should not be neglected.

The girl baby's genitalia should be cleansed at least twice a day, absorbent cotton dipped in boric-acid solution being used. If there be any discharges, which are not uncommon, the solution should be used several times a day until the condition has cleared.

Masturbation is frequently started because of genital irritation, which in turn may be due to lack of cleanliness, or to irritating discharges. Though many authorities doubt that there is more than a superficial pleasant sensation produced by the practice, it is surprising how early in life this practice sometimes begins. In any case lack of cleanliness produces considerable irritation of the entire nervous system.

Masturbation consists in producing friction upon the genitals by rubbing the thighs together, with the hand or clothing, or by rubbing against the bedding. Older children (still very small) often sit upon the floor and, with legs crossed tightly, produce the sensation by rocking back and forth. All this may not be appreciated by the parents, who may regard it as merely a little trick of the baby. But these

peculiar actions should be watched for and checked at the beginning. Children may form the habit of complete masturbating at any time from one to six or seven years old, though of course many do not begin until after this.

Navel, Care of. The first dressing of the navel at birth has been described. This always should be simple. After it is accomplished as little as possible should be done to the navel unless it shows signs of infection or inflammation. It is desired that the cord stump dry up. This naturally requires that it be kept as dry as possible. In giving the daily dressings it should be disturbed as little as possible. After the stump falls off, which it usually will do within five to seven days, a dressing of antiseptic cotton may be continued for a few days until the navel is thoroughly healed.

In case the stump should bleed after the first tying and dressing a second ligature should be applied, though the physician or midwife usually will attend to this. If the navel is moist or inflamed or if there is a discharge, either after or before the cord drops off, it may be dried up by dusting with an antiseptic powder applied twice daily. Boric-acid powder is satisfactory for this purpose. Rupture of the navel is occasionally met with in young infants. Abdominal bands should not be too tight, with the object of supporting the abdomen or preventing rupture, for the pressure upon other parts of the abdomen is likely to cause just such a rupture at this point. It is doubtful if the abdominal binder actually prevents any case of navel or umbilical rupture. For treatment see *Rupture*, in Volume VIII.

Baby's Urine

URINATION IN BABIES.—Normal young babies pass an almost colorless urine having low specific gravity due to small amounts of solids eliminated. As a rule little urine is passed during the first twenty-four hours. After this urination is fairly frequent, though the frequency varies considerably with different children, depending upon the nature of the children themselves as well as upon temperature, atmospheric conditions and nourishment.

The bladder usually empties its contents six to ten times daily, though at times the evacuations may be as frequent as hourly or as infrequently as eight to ten hours apart, in either case perhaps indicating no abnormal condition. Five or six

times daily perhaps is a good average for older children who have developed bladder control. The daily quantity of urine varies from several causes, including the weather, the child's age, weight and nutrition. The number of ounces passed daily will as a rule be approximately according to the following table:

| |
|--|
| From birth to two years, 8 to 12 ounces. |
| From 2 to 5 years, from 15 to 25 ounces. |
| From 5 to 10 years, from 22 to 33 ounces. |
| From 10 to 15 years, from 33 to 40 ounces. |
| In adult life, 52 ounces. |

If the urine becomes dark-colored and reduced in frequency and amount below these minimums the child should be given more water to drink. The bowels may require more frequent action also. Often it is advisable to make the food less concentrated, increasing the fluid content of the bottle milk for the bottle-fed baby, and perhaps increasing the mother's intake of water, fruits and salads for the breast-fed baby. If the urine is unduly frequent in passage or copious in amount it may be well to have it analyzed to determine its character, as diabetes occasionally develops in young children. Whatever the trouble the sooner it is known the better.

DIAPERS AND DIAPERING.—Diapers should be procured some time in advance of their actual need so as to prepare them for baby's use. Having been thoroughly washed to free it from the dressing which most new fabrics contain, the

Diapers



The method of fastening the child's diaper at the side is here illustrated.

new material should be exposed to air and sun and occasionally sprinkled with water. This will soften it so that it can be used in contact with the baby's delicate skin without discomfort. Enough diapers should be provided so there always may be a sufficient number of clean and thoroughly dry ones on hand. The material for diapers should be of soft linen, cotton, bird's-eye, daisy cloth or cotton flannel.

Never use a diaper a second time without being washed, no matter how dry it may have become. The urinary deposits retained in the napkin are irritating in their nature, especially to the delicate skin of a baby. Wet diapers should be scalded and then rinsed in several waters. If possible they should be dried out of doors in the sunshine. Soiled diapers should be thoroughly washed and *boiled*, though they may be rinsed off as soon as removed, preliminary to washing. Do not use soap powder, washing soda, or ammonia in the washing, for, unless the diapers are subsequently washed in several waters they may prove irritating to the baby's sensitive skin.

**Material for
Diapers**

Many mothers use pieces of old soft linen, cotton gauze or absorbent cotton inside the napkins. These pieces usually will hold most of the bowel evacuation and can be removed and burned, making it much easier and less unpleasant to clean the napkins themselves.

If the skin over the buttocks or around the anus or the genitals becomes irritated it should be sponged off at each diaper change with clear water or with water containing boric acid, especial care being given to the genitals. If the skin is badly chapped or is sore, olive oil may be used as a protection against wetting. In addition it will be soothing to the inflamed parts.

Mothers formerly used triangular diapers exclusively. The tendency now is to use the square diaper, folded and passed lengthwise between the thighs and pinned at the sides. This causes them to fit something like panties and avoids the bulkiness between the legs occasioned by the triangular diaper, which may intensify a tendency toward bow-legs. Two or three pins may be used on each side if desired, but pinning should not be too far down the legs, as this will interfere with leg motion.

Water-proof diapers, procurable in baby-goods stores, are

excellent when the mother desires to take the baby with her while shopping or on a short motor trip, also if the baby should play on the floor, as chilling is less likely when they are worn. But they should not be kept on long at a time and they should not be so snugly fitting as to exclude all air from the cloth diapers. In fact, there should be an opening at each side, for circulation of air. The advantage of the water-proof diaper is that the baby's clothing, bedding and mattress do not become wet when the diaper is wet. When such water-proof covering is used the tendency is to allow the baby to remain wet longer than otherwise. The diaper should always be changed as soon as it is known to be wet. Whether or not the water-proof covering is worn, wet diapers irritate the skin and produce chafing, perhaps more so when it is worn. Several water-proof coverings which are not as objectionable as rubber may be procured. While these can be bought ready-made, they can be inexpensively made at home to fit the baby better than many of those procurable at the stores. However, there is no objection to using ready-made ones when of suitable material and made to fit properly.

HOW TO HOLD THE BABY.—To insure comfort and prevent injury or damage it is important to know how to hold and to carry a tiny baby. For at least the first four months the head and the back always should be fully supported by a hand or the arm. After this time the baby usually can hold up its head unaided when the body is supported in the upright position. The best holding position is to support the baby's body on the open palm and extended fingers of one hand while the head rests on the forearm of the same arm. The other hand may be employed otherwise if necessary or it may support the baby's feet.

Carrying
the Baby

When holding the baby upon one's lap it is better to allow it to lie face downward, though the back should not be allowed to sway downward. Often it is better, therefore, that the baby be placed on a pillow across the knees, though the dress or apron drawn tightly across the knees may answer. The baby should lie on its back part of the time, also, while on one's lap, but the head must be supported. When dressing a baby too young to sit up, lay it across the lap and draw the clothing up over the feet rather than slipping it over the head.

During the first three months at least, when a baby must be lifted it should be only by putting both hands beneath the body, much as when supporting him in the arms. Later on he may be lifted by placing the thumbs across the chest and the palms in the armpits with the fingers well around the back, thus giving equal pressure to all points. If the baby is lying face downward he may be lifted in much the same manner, or he may be turned over before being lifted. There should be little traction upon the shoulders for several months, but rugged children over three months old may be lifted carefully by the arms.

Cuddling—
a Bad
Habit

CUDDLING.—During the first few months cuddling seems to give an infant little if any satisfaction, though later it seems to be enjoyed. Yet this holding and cuddling are likely to induce bad habits, for at this stage an infant is greatly governed by whatever influences are brought to bear upon it. As

soon as one begins to cuddle an infant, except sometimes in earliest life, the baby begins to want this all the time. If it is not cuddled from the beginning but is placed and allowed to remain in its crib to grow and develop, it will accustom itself to that and be satisfied.

A baby should be encouraged to learn early how to amuse itself. It is the effort to amuse itself that brings about development of the little



No matter how strong the baby's back may seem, it is well to exercise precaution in holding and carrying the child to avoid strains and other accidents.

one, as it gradually learns what its various members are and how to use them. If a mother cannot resist the temptation to feel the velvety skin of her baby or the little body in her arms, she may partially gratify her desire by bending over the infant while it is lying in its crib instead of lifting it up, or while it is lying on her knees after giving necessary attention. The mother's desire to hold the baby should be satisfied by the necessary holding during nursing, if the baby is breast-fed.

PETS AND PESTS.—Pets are a danger to infants in several ways. There is always the possibility of their carrying disease in their fur; they sometimes harmfully affect children through their odor, perhaps producing in some cases loss of appetite resulting in general lowering of vitality and even anemia. Occasionally a tame animal becomes temporarily vicious, during which time it may injure a child.

Pets

Great care should be taken to exclude insects from rooms which children occupy. Some are parasitic, some may carry disease, some bite or sting, and some may get into the ears or nose of a child and cause great pain or fright, sometimes hysterical attacks or even convulsions. Should an insect get in the ear or the nostril a few drops of any oil will make it crawl out. Moreover, the oil will heal any scratches made by the insect.

CLOTHING.—Growth and development continue best when the environment is kept at a fairly uniform temperature. The newborn infant has a rather limited capacity for generating heat, therefore its warmth must be largely supplied for it. During its first few weeks it needs considerable warm clothing, though it must be remembered that more harm has been done in the past by an excess than by a deficiency of clothing. If the room is kept at a uniform, moderate temperature and light but warm bed-covering is used, the clothing the baby must wear will need to be only comparatively light. In any case only enough should be used to maintain warmth.

Baby's
Clothing

Coddling and restriction of movement caused by an excess of clothing are as harmful as a slight deficiency of clothing. Both should be avoided. All of baby's clothing should be simple, loose-fitting, light in weight and color. Loosely woven fabrics are best; they provide for an inner layer of air and are warmer than tightly woven materials of the same weight.

Bands and
Binders



Perhaps the greatest instinctive fear of the young child is against falls. This should be borne in mind while he is being carried about.

The conventional garments for baby's wear immediately after birth are the binder, diapers, shirts, slips, and nightgowns. None of these should bind in any degree, for freedom of movement is highly important. Binding interferes not only with movement, but also with circulation, and may cause considerable harm.

Binder.—It is no longer considered necessary that the binder be tight-fitting; yet it should be snug enough to retain the navel dressing

in place. Fine flannel, about five inches wide and about three-quarters of a yard long, makes a satisfactory garment. It should not be hemmed, for the pressure of the hems against the soft flesh of the baby will be uncomfortable. Notching the free edges (pinking) will tend to prevent raveling, or the edges may be unfinished. This three-quarters yard should go around the little body twice. A small gore or two toward the middle of one side will make it conform well to the shape of the baby's body, the seams to be placed outward when the binder is applied. The binder may be fastened with small safety-pins placed lengthwise of the body, though a better way is to sew or baste it on.

If the binder is applied too tightly it will interfere with circulation and with distension of the abdomen during feeding. Sometimes this will cause vomiting and also prevent proper inflation of the lungs. It also may have a tendency to cause rupture of the navel, rather than prevent this condition, as it is supposed to do. After the band is applied it is a good practice to run a finger around beneath it to be assured that it is not applied too tightly.

After the navel is healed and needs no further dressing, or after the first couple of weeks, a knitted band may be used if desired. If used it should be of soft wool and silk mixed. Ordinarily the binder may be discontinued entirely within six or eight weeks at most; usually within three or four weeks. If there is a tendency to diarrhea or undue thinness the binder may be worn for three or four months, though proper treatment of the diarrhea and proper adjustment of the diet should correct these conditions so the binder may be discarded sooner. The most approved binder for long use has shoulder straps to hold it up and a little tab on each side of the lower edge to which to pin the diaper, the same pins that fasten the diaper to be used for the binder.

Baby's shirts should be light-weight, loose-fitting, soft, and with plenty of freedom around the armpits. A mixture of silk and wool or linen and wool will be best for winter use, these keeping in better condition when frequently washed than all-wool fabric. For summer light silk and wool, silk and cotton, or cotton may be used. As the weather in summer may vary from hot to comparatively cool it is well to have a supply of shirts of various weights to suit these changes and the changes from night to day and day to night.

Baby's Gar-
ments

Since young babies lie mostly on their backs, the shirts may be buttoned all the way down the front to make it easier for both baby and mother when dressing. The buttons should be small. They may be protected with a narrow facing flap. The shirts also may have a flap front and back to which the diaper may be secured, to serve the purposes of keeping the shirt more smoothly fitting and the diaper from slipping down.

In washing woolen or part woolen garments light suds made from a white soap in medium-warm water should be used, the garments being rinsed in plain water at the same tempera-

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clothes should be roomy enough not to interfere with complete freedom of action.

Clothing at
the Minimum

If any, only the thinnest gauze flannel undershirts should be worn during hot summer days; additional clothing to be put on as required by changes in temperature. At all times babies and young children especially should be dressed for comfort. Mothers should appreciate the need for little clothing during summer, also the harm of coddling or overclothing in winter. At all times freedom of movement should be kept in mind, as it is only by unhampered physical activity that children may develop normally.

Frequency of laundering will determine to some extent what will be required in the wardrobe of a baby. This matter can be allowed considerable latitude, though at all times the comfort and health of the baby must be considered. Finances also will determine the amount of clothing kept on hand for the baby, in many cases. The following is a list of the conventional garments ordinarily required: flannel bands; flannel skirts; nainsook skirts; night-dresses; dresses or slips; cotton diapers; one dressing-gown or slumber robe; and some little shirts.

Many additions will be made by most mothers and relatives and friends. But whoever supplies the wardrobe or additions should bear in mind that it is far more important that there be ample amounts of simple and comfortable and healthful clothing than large supplies of elaborate clothing suitable only for display. As many additions to the above list may be made as taste, desire and finances will permit, provided they all are made with the idea of comfort and service paramount.

While the above instructions are according to the accepted, orthodox methods of clothing children, it is generally conceded that the less clothing a baby can safely wear the more healthful it is likely to be. While in its crib, except in very cold weather, the more sanitary and modern method is to clothe the baby from the first only in a shirt and a diaper and the abdominal band necessary to protect the navel till it heals. He should be laid on a rubber sheet covered with a cloth pad which must be frequently changed. For convenience a woolly blanket or a wrapper may be kept near to cover him when he is lifted from the crib.

All mothers should arrange a routine that will enable them to have close at hand an abundance of clean changes for the baby. Dresses, sacks, and embroidered odds and ends may, from the standpoint of practicality, convenience and health, be abandoned except on occasions of ceremony, or when there are old-fashioned prudish relatives around who are too modest to view an innocent baby in diapers only.

When the point is reached where it begins to throw its covers off or kick up its little heels, a sweater, reaching nearly to its knees, and woolen stockings will keep it warm.

Without any intervening period of many-lengthed slips and dresses, it is the more modern custom to allow the baby to graduate from diapers directly into *rompers* as soon as it is able to sit up and play a little.

Little *bonnets* will be desirable when baby is taken out of doors in its carriage, except in the summer time, when nothing will be needed if the head is shaded. These bonnets should be appropriate for the season, but always should be of soft material, while the tying ribbons should be of softest silk or cotton. In no garment, for inner or outer wear, should starch ever be used. Starched garments irritate directly by their stiffness, and in even worse manner in case perspiration or other moisture softens the starch in contact with the baby's skin. Besides, there can be no comfort for baby or child of any age in a starched garment.



PHOTOGRAPH BY EWING GALLOWAY

A scale of this type, employing the lever principle, is usually more reliable than a spring-balance scale in determining the child's weight.

The Child's
Wardrobe

Baby's Out-
ing

BABY'S OUTING.—The baby's room at all times should be well ventilated and in winter, if the little one is well covered, may be kept cold. Except in cold or stormy weather the baby from the first should be put on the porch for its nap. If there is no porch the window in its room should be left open.

From the first baby's daily outing should be considered of the utmost importance—as important as food, bathing and sleep. The child should be taken out as nearly at the same hour each day as possible. This should not be neglected unless the weather is inclement, in which case the windows of the nursery or child's bedroom should be opened wide.

The best time to take baby out is between ten-thirty and twelve o'clock in the morning, except in hot weather, when earlier, before the sun gets too hot, may be better. But the late morning usually is preferable, for by that time the baby has had its morning meal, its bath, and its nap. If possible it should be taken out also in the afternoon, late during hot days. The mother may not always find this convenient if she has her housework to attend to, but if she will make the sacrifice it will well repay her, as the child will be a "better baby" for these airings. If there is a clean, dry, bright garden, a court or a balcony, this can be utilized for one of the outings; especially if the baby is young these may occasionally be substituted for the outings.

GROWTH AND DEVELOPMENT.—All babies do not develop in every way the same, yet most normal babies reach certain stages in their development and begin to do certain things at about the same age. By this we mean that most normal babies begin to creep, stand up, walk, cut teeth, show various emotions, make certain gains in height and in weight at about the same age. Should this development not be according to the usual in any individual child, however, it should cause no alarm, unless the baby is pronouncedly backward in certain definite respects.

Weight. The weight of a child is highly important. At birth the average normal baby weighs about seven pounds, a little over or a little under, boy babies averaging slightly heavier than girls as a rule. A baby weighing twelve or fourteen pounds may be approximately normal, but it would be better for both baby and mother if it weighed half as much.

Few normal babies that go to full term weigh less than five and one-half pounds.

During the first week after birth the baby generally loses from one to three ounces, but during the second week it makes up this loss and by the end of the second week it is usually slightly above birth weight. The baby should then gain from five to seven ounces a week for the next six or eight weeks. If it gains less than four ounces a week a study of his feedings and general condition is advised.

Weight,
Growth and
Develop-
ment

During the third and fourth months a baby should gain about five ounces a week, which means that by the time he is five months old he will weigh twice as much as he did at birth.

During the fifth and sixth months there should be a gain



This device for the young child learning to walk is called a "walker." Its purpose is to encourage the child to take the standing position and to protect it against injury when its early attempts to balance itself on its feet result in falls.

of a little less than five ounces a week. From then to the twelfth month the increase should be about a pound a month. Thus at the end of the year it will have trebled its weight at birth. By watching the baby increase one gets an insight into its general condition. One cannot tell by looking at a baby just how it is doing, for some large babies are flabby and soft and weigh less than a comparatively smaller baby who has solid, substantial flesh and firm, strong bones.

It is a good plan to weigh a baby once a week and to keep a record for reference. Many perfectly healthy and normal babies do not gain consistently right along without interruption, for there may be periods of teething, hot weather, or some slight indisposition, when they will nurse less and make no gain for longer or shorter periods. There may be a gain in weight, too, that does not mean normal development, because not accompanied by a gain in strength and mental development. See below for weight gain after the first year.

**Measuring
Proportions**

Height. The average length of new-born babies is about 19 inches. A baby grows about an inch a month in height for the first four months, after that about one-half inch a month for the next eight, making about eight to eight and one-half inches gain by the end of the first year.

NORMAL DEVELOPMENT FIRST FIVE YEARS

| Age | Height inches | Weight pounds | Chest inches | Head Girth inches |
|----------|------------------|------------------|---|---|
| At Birth | 19 | $7\frac{1}{2}$ | $13\frac{1}{2}$ | 14 |
| 1 month | 20 | $8\frac{3}{4}$ | <i>From first to 14th month, the chest and head girth increase about four inches.</i> | <i>The rate of growth varies in different children and cannot be precisely standardized</i> |
| 2 " | 21 | $10\frac{3}{4}$ | | |
| 3 " | 22 | $12\frac{1}{4}$ | | |
| 4 " | 23 | $13\frac{3}{4}$ | | |
| 5 " | $23\frac{1}{2}$ | 15 | | |
| 6 " | 24 | 16 | <i>The rate of growth varies in different children and cannot be precisely standardized</i> | |
| 7 " | $24\frac{1}{2}$ | 17 | | |
| 8 " | 25 | 18 | | |
| 9 " | $25\frac{1}{2}$ | $18\frac{3}{4}$ | | |
| 10 " | 26 | $19\frac{1}{2}$ | | |
| 11 " | 27 | $20\frac{1}{2}$ | | |
| 1 year | 28 | $21\frac{1}{2}$ | 18 | 18 |
| 2 years | 31 | 27 | 19 | 19 |
| 3 years | 35 | 32 | 20 | $19\frac{1}{4}$ |
| 4 years | 38 | 36 | $20\frac{3}{4}$ | $19\frac{3}{4}$ |
| 5 years | 41 | 40 | $21\frac{1}{2}$ | 20 |

Chest measurement is at least as important as, if not more important than the length or height of the child, so its growth and development should be noted every few months. At birth, as the preceding table shows, the average chest measurement is somewhat over thirteen inches. This figure should increase four inches or a little more during the first year. By the third year the chest should be a little larger around than the head.

Head. The circumference of the head at birth, as shown, averages about 14 inches. It should grow about four inches during the first year, but after that it increases in circumference about one-half inch a year for twelve years. The lower jaw is much undeveloped at birth. It consists of two bones which grow together at the chin during infancy; it continues to develop throughout childhood and, in many cases, undergoes especial growth after puberty.

At the top of the head near the front and at the back are two spots which at birth are not covered by bone, but only by a membrane and the scalp. These soft spots are called, respectively, the anterior and the posterior *fontanelles*, the anterior being the larger. This latter is roughly diamond shaped, one-half to one inch across. Either marked depression or bulging of the scalp over this space may signify some abnormal condition; depression possibly indicating diarrhea or malnourishment, bulging possibly indicating congestion of the brain or some other abnormal state. Care should be taken to avoid striking the baby on the head at these points, and to prevent pressure, as by the hands or pillow folds, for there is no bone to protect these parts of the head. The "seams" or

Soft Spots
in Head



PHOTOGRAPH KEYSTONE VIEW

A simple method for measuring the baby's increasing height.

**Bone-Form-
ing Foods**

sutures between the bones forming the skull are not grown solid at birth. In some cases there is even a separation.

In normal children the fontanelles and the sutures close by bone formation, between one year and one and one-half years of age. If they fail to unite by the end of the second year the condition probably indicates a deficiency of bone-forming elements in the diet, as in rickets. Feeding such elements and providing sunlight, whether natural or artificial, will cause normal union. All of the bones of the new-born infant are largely cartilaginous, gradually hardening with the increasing deposits of mineral elements.

OTHER POINTS IN DEVELOPMENT.—Between the third and the fourth months a normal baby, when well supported, should be able to hold its head up; but it never should be allowed to sit with its head wobbling in all directions for longer than a moment, if at all. If it is laid on its abdomen for a good part of the time its little back and neck will become stronger more rapidly.

The first fuzzy hair on the baby's head often comes off after about the first month, being replaced with a growth of real hair, the shade of which may be different from that of the down.

As a rule the baby's eyes at birth are dark blue, but during the first month they change to the color which will be permanent. It has been reported that many negro babies have blue eyes at birth, but in these cases it is likely that there is a recent mixture of the bloods of the white and the negro races.

During the first month the eyes do not coordinate and focus correctly, hence the baby can distinguish only between light and darkness—not objects. Toward the end of the second month it begins to notice things somewhat intelligently. At the end of the third month it usually is able to recognize those with whom it comes into close and intimate contact.

If it be true that at birth a baby is deaf it must be a wise provision of Nature, for if its hearing were acute on coming into the new world, the shock to the entire nervous system would be great. The sense of hearing certainly develops rapidly and the baby seems to be able to detect noises after a remarkably short time, though its ability to locate the source



PHOTOGRAPH BY EWING GALLOWAY

PLATE 53. A Hindu bride, with head and upper body completely covered, beginning her journey to the bridegroom's home.
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or direction of these sounds does not develop until some time later.

There is little saliva in the mouth of the new-born baby, but it increases so rapidly that by the end of the third month there is considerable drooling.

At birth a dark-skinned baby is usually a dusky red; a light-skinned one a bright pink. This redness vanishes in a week or two.

For a few days after birth a baby often may appear more or less jaundiced. The exact cause for this condition is not known. Some authorities think it due to the naturally vigorous action of the very large liver, some to indigestion, some to inability to handle the excessive fat present in the colostrum of the breast, some to premature cutting of the cord, and others to too tight binding of the abdomen. Usually it is of no consequence. Jaundice

Over the body at birth most babies have a liberal amount of downy hair, called *lanugo*, which soon disappears.

The baby does not perspire until toward the middle of the second month.

Babies will grasp things from birth on, but they do not begin to reach for things until about the fifth month. At any time from the fifth to the eighth month (usually about the seventh month) they begin to sit up alone. At about the seventh or eighth month they begin to creep. Children of normal development and strength will endeavor to stand alone during the ninth or tenth month, and usually are able to accomplish this feat at about the eleventh or twelfth month.

Some babies begin to walk at ten months, others at two and one-half years or even later. Usually they begin between the twelfth and the sixteenth months, though equally normal babies may delay this process until between the seventeenth and the twentieth months. If there be a delay in walking until after two years, usually, there may be a justifiable suspicion that the development of the child has not been normal. Naturally, weight and size have much to do with a baby's ability to walk at an early age, heavy babies often being backward in this respect though possibly normal otherwise. Walking

Two interesting features regarding the walk of babies are the fact that they are almost invariably pigeon-toed and that

when they fall they practically always fall backward into a sitting position. The former is due to the position the child held in the mother's uterus; the latter to the fact that the muscles on the front of the thigh and the leg are not nearly equal in strength to those behind. These heavy muscles thus serve as pads and protect the body from injury by falls.

Walking and
Talking

BABY'S FIRST WORDS.—There is a great difference as to the age at which children begin to talk or form words. Most normally bright children, however, form words as early as one year old, many as early as the eleventh month. But as a rule sentences are not formulated before the end of the second year, often several months later than this. The little cooing sounds which babies make are often misconstrued by loving parents as efforts on the part of the baby to say words, whereas these sounds usually denote merely a state of comfort and satisfaction.

At the age of about six months babies form vowel sounds, especially "ah." Not long after they begin to combine these vowel sounds with some of the consonants, such as B, D, P, N, M, and J—the easiest for the little lips and tongue to shape. "Da-da" and other combinations are "spoken" by the baby without any definite meaning, and even "Ma-ma" may be included in this list. But between ten and twelve months babies usually can form and apply "Ma-ma" and "Pa-pa" properly.

SMILING AND LAUGHING.—Babies usually smile early; in fact, by the end of the first month they may be able to show pleasure in this manner. But there rarely is baby laughter before the fourth or sixth month, sometimes not until several months later.

Teething

THE TEETH.—In the section on Anatomy, in Volume I, it is stated that there are twenty primary, temporary, or "milk" teeth. While rarely a child may be born with one or more teeth erupted, the usual time of eruption of the first teeth is as follows:

| | |
|---------------|--|
| 5 to 8 months | The two lower middle incisors |
| 8 to 10 " | The four upper incisors |
| 10 to 11 " | The two lower lateral incisors |
| 12 to 15 " | The four upper and lower forward molars |
| 18 to 20 " | The four canines—"eye" and "stomach" teeth |
| 24 to 30 " | The four posterior molars |

At the end of the first year, therefore, the child usually has eight teeth; at one and one-half years, at least twelve; at two years, sixteen; and at two and one-half years, twenty. If there is a deficiency of lime in the baby's diet dentition will be late, the eruption of the teeth beginning considerably later than usual. The presence of anemia, rickets, and nutritional disorders that prevent the body obtaining adequate amounts of vitamins and mineral salts will cause late dentition.

SITTING AND STANDING.—A baby who has developed normally is usually able to sit up unsupported at the seventh to the ninth month. Efforts usually are made to stand on his feet during the ninth or the tenth month, though much of his weight will be supported by his arms. His balance will be obtained solely by means of his arms as his hands grasp his crib rails, or a chair if he is on the floor. By the end of the first year he should be able to stand alone. From then on he will begin to make attempts to get about, by sidling around chairs and other furniture. By the fifteenth or sixteenth month he usually will be able to walk without support, though his balance necessarily will be uncertain for some time.

Learning
to Stand



A simple movement with which the child may be introduced to exercise involves grasping the hands as illustrated while the youngster is brought to a sitting position and then permitted to drop gently back to a lying posture. The child's hands should be clasped to insure control and safety.

Learning to Walk

It is not a good plan to force a child to walk. If he has the strength and normal development he cannot be kept from walking. When he does so it will be his normal time. A child's bones are soft, so if he begins to walk before the leg bones are sufficiently hardened to support the body weight there is danger of his developing bow-legs or knock-knees. If a baby is able to walk he will do it himself. If, however, a baby is especially backward in learning to walk it may be necessary to look into the matter to see if any abnormality prevents him from acquiring the art. Rest assured that if your baby is provided with every factor necessary for its normal growth and development and if inherently it is a normal baby, it will progress as a normal baby should.

Mental Development

MONTHLY PROGRESS.—The following details of the appearance and conduct of infants at various stages of development are considered by standard medical works as a safe record of the average development of children. No concern should be felt should a child fail to exhibit any of the characteristics here described for a certain period of its life at the time indicated. But if several months should elapse without any sign of the development usual at a certain age, prompt action must be taken. General health-building measures must be instituted and proper authorities consulted as to the cause of the retarded development. The information given below is epitomized for convenience. The ages, as already stated, are average.

First Month. Sensitive to light as early as first and second days. Pleasure in low artificial light and in bright objects on eleventh day. Hears on fourth day. Discriminates sounds last two weeks of month. Starts at gentle touches on third day. Sensibility to taste about end of first week. Strong-smelling substances produce mimetic (imitative) movements at birth. Discomfort first days from cold, wet, hunger, tight clothing. Smiles on twenty-sixth day. Tears on twenty-third day. Vowel sounds in first month. Memory first active as to taste and smell, then as to touch, sight, and hearing. Incoordinate movements of eyes. Sleeps two hours at a time, and twenty hours in twenty-four.

Second Month. Strabismus (cross-eye) occasionally until end of month. Recognizes human voices; turns head toward

sounds; pleased with music and with human face. Sleeps three, sometimes five or six hours at a time. Laughs from tickling at eighth week. Clasps its four fingers at eighth week. First consonants from forty-third to fifty-first day (am-ma, ta-hu, go, ara).

Third Month. Cry of joy at sight of mother and father sixty-first day. Eyelids not completely raised when child looks up. Accommodated vision at ninth week. Notes sounds of watch at ninth week. Listens with attention.

Fourth Month. Eye movements perfect. Objects seized are moved toward eyes. Grasps at objects too distant. Joy at seeing self in mirror. Contraposition of thumb (opposing fingers) in grasping at fourteenth week. Head held up permanently. Sits up with back supported at fourteenth week. Begins to imitate.

Fifth Month. Discriminates strangers. Looks inquiringly. Pleasure in crumpling newspapers, pulling hair, ringing a bell. Sleeps ten to twelve hours without food. Desire shown by stretching out arms. Seizes and carries objects to mouth. Consonants L and K used.

The Baby
Month by
Month

Sixth Month. Raises self to sitting posture. Laughs, and raises and drops arms and "crows" with pleasure. Compares image of father and mother in mirror with originals.

Seventh Month. Astonishment shown by open mouth and eyes. Recognizes nurse after four weeks absence. Sighs. Imitates movements of head, of pursing lips. Averts head as a sign of refusal. Places self upright on mother's lap.

Eighth Month. Astonishment at sounds and sights; at imitations of cries of animals.

Ninth Month. Stands on feet with support. More interest shown in things in general. Strikes hands together with joy. Shuts eyes and turns head away when something disagreeable must be endured. Fear of dog. Turns over when laid face downward. Turns head when asked where light is. Questions understood before child can speak. Voice more modulated.

Tenth Month. Sits up without support in bath and carriage. First attempts at walking at fifty-first week. Beckoning imitated. Misses parents in absence, also a single nine-pin of a set. Cannot repeat a syllable heard. Monologues and

hints at imitation (ma, mama, pa, papa, appapa, baba, tata, rrr, rra).

Eleventh Month. Screaming quieted by "sh!" Sitting becomes habit. Stands without support. Stamps feet. Syllables correctly repeated. Whispering begins. Consonants B, P, T, D, M, N, R, L, G, K. Vowel A most used; U and O rarely, I very rarely.

Talking and
Walking

Twelfth Month. Pushes chair. Can raise self to feet without help. Obeys commands. Gives the hand on request.

Thirteenth Month. Creeps. Shakes head in denial. Says "mama" and "papa." Understands spoken words.

Fourteenth Month. Walks with support. Raises self by chair. Imitates coughing and swinging of arms.

Fifteenth Month. Walks without support. Laughs, smiles, gives a kiss on request. Repeats syllables. Understands ten words.

Sixteenth Month. Runs alone. Falls rarely.

Seventeenth, Eighteenth, Nineteenth Months. Sleeps ten hours at a time. Associates words with objects and movements. Blows horn, strikes with hand or foot. Waters flowers, puts sticks of wood in stove, washes hands, combs and brushes hair and other imitative movements.



With the child's feet braced in the manner here shown, it is possible to draw the youngster up to sitting position and to return to full length, as illustrated, a half dozen or more times, even in infancy.

Twentieth to Twenty-Fourth Months. Marks with pencil on paper. Imitates elders in "reading" papers. Few oral expressions are recognizable. Executes orders with surprising accuracy and with great willingness. Tries to sing and beat time and dance.

Twenty-Fifth to Thirtieth Months. Distinguishes colors correctly. Forms sentences of several words. Begins to climb and jump and ask questions.

Thirtieth to Fortieth Months. Goes upstairs without help. Sentences correctly applied. Clauses formed. Words distinctly spoken, but influence of dialect appears. Questioning repeated to weariness. Approximates manner of speech to that of family more and more.

THE BABY'S CRY.—The baby's cry is full of meaning. Mother or nurse should study it in order to interpret it as correctly as possible. It is the young baby's only language and it is used to express emotions. The first cry at birth is an indication that respiration is established and that everything is well. Later on it indicates the definite condition that necessitates the cry. To a reasonable extent crying is good for baby, as it helps appreciably to develop and expand the lungs and to stimulate the circulation of the blood, and, within well defined limits, it denotes a condition of health and vitality. But if crying continues protractedly something is wrong which must be looked after and remedied.

Meaning of
Baby's Cries

A sudden scream usually is caused by abdominal pain, such as colic or some stomach distress.

Paroxysmal crying, acute in its nature, abruptly ceasing from time to time, also is usually due to colic. If the little belly is distended and tight and if the baby's legs are drawn up spasmodically, and especially if the hands and feet are cold, the cause is almost surely colic.

Crying during bowel movements denotes pain at this time and should be thoroughly investigated. The condition may be due to constipation with large and hard stools; on the other hand, it may indicate inflammation in the bowels or some abnormal condition of the rectum.

Low moaning cry usually indicates developing infection of some kind, with more or less physical weakness. Sometimes the baby is not strong enough to make a lusty sound at this

1752 MEANING OF CHILD'S CRIES

time, in fact may be unable to make any sound; it may just twist its face into the position for crying.

A puny, pcevish cry usually is due to irritation caused by dentition. However, it may be a manifestation of some form of nervousness which can be more correctly ascribed to toxic infection.

A restless, angry cry is caused, as a rule, by hunger or thirst. This kind will not cease until and unless the hunger or thirst is appeased. The real *cry of anger* is usually accompanied by twisting about of the body, kicking of the feet and other manifestations of temper.

Earache produces an unappeasable cry which usually is accompanied by tossing the head from side to side and other symptoms pointing to much pain. As a rule the eyes are closed and the face has an anguished expression. The mere touching of the head in the region of the affected ear produces increased crying. Swallowing has the same effect.

Pain in the joints produces a cry similar to that of earache and is made worse by attempts to move the affected joints. Touching the head or the ear may give rise to no crying, and the head is not likely to be tossed about.

Persistent crying may be due to the pricking of a pin, or pressure of an improperly applied or wrinkled binder or diaper, which has become a source of irritation.

In respiratory conditions the cry often is short and weak, due to the fact that the respiratory passages are inflamed and an insufficient amount of air is secured to produce a full cry. In case of *pleurisy* the crying is stopped short during each breath because of the pain resulting from friction of the inflamed surfaces of the pleura.

In laryngitis and false croup the cry is hoarse and usually intermittent.

Night screaming or night-terrors usually are produced by nightmares or bad dreams. The child awakens or semi-awakens screaming with full power and usually stops as soon as assured by the parent that everything is all right. All the baby or child requires is calming and reassurance, perhaps also a little drink of cool water.

Habit crying, or crying until the baby or child gets what it wants and then stopping only to cry again when the article

is taken away from him, should be taken in hand from the beginning in order to prevent annoyance later on. This is the cry of the "spoiled baby" and should not be tolerated. Babies soon learn to cease crying or not to cry when things they want are not forthcoming because of a crying spell.

NURSING.—It is deplorable that countless mothers will not nurse their offspring although fully capable of doing so. To say the least, these women are lacking in some of the essential qualities of motherhood. Breast-feeding is Nature's method of nourishing the new-born baby. Only when fed in this manner does a baby receive the nourishment best suited to it and all its early needs.

In order to insure the best natural food supply, however, the care of the mother's breasts should be commenced at an early period of pregnancy. In the first place, no pressure from tight clothing should be allowed, for this will interfere with the full development of the breasts. During cool weather the breasts should be warmly covered; lightly in warm and hot weather. If increasing size should render them uncomfortably heavy they may be supported by a brassiere, though this should merely support, not bind, for opportunity for full expansion should be provided.

Care of the
Breasts

The *nipples* must be kept scrupulously clean and be given the attention necessary to permit them to develop sufficiently



At one year or less, the child may learn to use its hands in feeding from the nursing bottle.

and in such shape that the baby can readily grasp them. They should also be treated to make them firm and hard so as to insure against the possibility of painful fissures or cracks during lactation; for such conditions may necessitate the premature weaning of the child, or they may cause the formation of ulcers or infection of the gland.

Care of
Nipples

If scales develop on the nipples and have a tendency to adhere they should be washed away frequently. Flat nipples should be massaged daily and gently pulled out from the breast with the fingers during each massage. The massage should include the areolar area surrounding the nipple; in fact, the entire breast may be gently massaged, beginning at the outer margin and making the movement inward toward the nipple.

It is not advisable to use a breast-pump to develop either the breast or the nipple. Finger massage and gentle traction upon the nipple is all the treatment that should be given. Breast-pumps used before the last month of pregnancy may bring on a miscarriage. A nipple-protector may be worn during the day, being a safeguard against infection. If desired, such a protector may be worn also during nursing. Protectors of various designs are procurable at most drug-stores.

In spite of all treatment, if the nipples will not shape themselves so the infant can obtain a satisfactory hold upon them an artificial nipple may be used for nursing. Several varieties of these may be obtained from the druggist; but one of the best consists of a glass base upon which is fitted a detachable rubber teat. This nipple should be boiled and cleansed thoroughly after each feeding to prevent contamination. If the breasts are able to provide an adequate amount of milk yet the nipples are too small or are sunken, the artificial nipple should be used before resorting to artificial feeding for the baby, or the milk should be extracted by a breast-pump or by milking and the baby fed this milk by bottle.

Soreness of the nipples can be prevented in many cases by having the nursing periods at strictly regular intervals and washing the nipples after each nursing with boric-acid solution, then drying them and applying a small amount of olive oil, at least for the first two or three weeks. If the nipples show a tendency to become cracked or sore, or if they have become so

during previous nursings, they should be bathed with salt water, or equal parts of glycerite of tannin and water. This preparation may be applied daily during the later months of pregnancy, also.

Caked Breast is a painful distention of the breast occurring during the latter days of pregnancy and the first days of lactation. The medical term for it is *stagnation mastitis*, another lay term being "milk cake." If the condition is not properly treated at once an abscess is likely to develop. Gentle rubbing with warm olive oil three or four times a day will help prevent the condition and also help relieve it after development. A more certain way to prevent the condition, however, is complete emptying of the breast at each period of nursing.

Caked Breast

Between nursing periods, when the secretion of milk is greatly in excess of that needed, milking the breast with the fingers is advisable. The breast should be supported on the hand and fingers, the thumb and forefinger of the supporting hand doing the milking by gentle movements from the base of the nipple. This is much more satisfactory than the use of the breast-pump. Sometimes when the supply of milk is excessive it is possible for the mother to nurse some baby not her



One of the best early exercises for the child is that of raising from lying down in full length to sitting position, then returning to original position. This exercise may be continued for several minutes, with the time gradually extended for longer periods, depending upon the child's desire to exercise.

own, one which otherwise would have a deficient supply of breast milk or would have to be artificially fed.

During the first few weeks of lactation the average healthy mother secretes about one pint of milk during each twenty-four hours. This quantity sometimes is doubled, often considerably reduced. Normally the quantity increases according to the baby's later needs. At first babies usually are unable to nurse and digest all the milk the mother secretes, but later the quantity becomes adjusted to their needs.

In nursing, mothers make two mistakes so frequently that it is important to mention them here. These are overfeeding and irregularity in feeding times. Both these errors are easily correctable, and yet are of the greatest moment for the future health and comfort of the child and convenience of the mother.

Overfeeding
of Infants

As a rule, the tendency is to overfeed a baby. Nothing will produce illness in an infant more quickly than this pernicious practice. Irregular feeding is another pernicious practice and usually associated with overfeeding. Irregularity itself will produce digestive disturbances and general functional derangement. Many mothers cannot resist the temptation to nurse their offspring at every sign of discomfort or restlessness. As a consequence the child is nursed at any and all times of the day and night. Instead of quieting the child it has the opposite effect, eventually if not immediately; it keeps the baby in a constant state of discomfort, the stomach being too full all the time and never having a chance to rest. The result is that the infant is likely to cry more than ever.

Regularity of feeding is important. Each feeding should be thoroughly digested before another is given. In addition, it is good to establish the habit of having the hunger satisfied at the same hours each day. This will develop in the child the habit of arousing hunger at about the same time each day. Sickness results much more frequently from overfeeding than from underfeeding. Hence, instead of feeling that baby is not getting enough nourishment it is much better that a mother fear he is getting too much, with the possibility of contracting some ailment in consequence.

While in all books published on infant feeding there are tables and formulas of the number and the quantity of feedings for children of various ages, it is impossible to make these

fit every child's needs. Each mother really must find what is best for her own child. Often a fewer number of feedings daily, or a lesser quantity than that usually prescribed for a child of a given age or weight, will be found more suitable. Seldom, however, is *more* needed than is recommended.

Whatever schedule is laid out for an infant, provided it fills his needs, should be strictly adhered to, in order that regularity may not be interfered with. Regular nursing is not only good for the child, but it has a great effect upon the secretion of milk in normal and proper quantities. Moreover, with regularity of feeding established the child is trained not to cry for the breast, for it will soon learn that crying is of no avail and that it will be fed at the proper time.

The practice of night-feeding is a bad one. In most cases it can be dispensed with, though for the first few weeks and in certain cases later it may be necessary to compromise. The ten o'clock night nursing usually should be the last one until six o'clock in the morning. This will give the digestive apparatus of the infant a chance to rest, and will favor its better functioning. It will also give the mother an opportunity to



PHOTOGRAPH BY WING GALLOWAY

A type of rugged and sturdy childhood.

Night-Feeding Injurious

get more sleep, which she probably needs. This will aid in maintaining and improving her health and vitality, and will favor a better quality of milk during the day, which in turn will insure better nourishment and development of the child.

A new-born baby's stomach is merely a slight dilation of the food-tube, not a distinct pouch as it is in later life. At first its capacity is only two or three tablespoonfuls. This small quantity is quickly digested, so it is well during the first two weeks of nursing to feed the baby every two or two and a half hours, making in the neighborhood of eight or ten feedings in the 24 hours.

**Time-Table
for Nursing**

After two weeks when the mother is up and about it is better to establish a definite schedule. Some babies are put on a three-hour schedule and some on a four-hour. The three-hour schedule may be for a week or two as a more gradual change from the first frequent nursing periods. The four-hour nursing schedule is now generally accepted for the more permanent schedule. It is satisfactory in the majority of cases. Some doctors claim that it is better for the baby; certainly many healthy and hearty babies are reared on it now-a-days. To carry on lactation successfully a woman must be contented and happy. The four-hour schedule insures her a longer rest between nursings and enables her to carry on her routine of life without feeling that the nursing of the infant is a handicap. It also gives her more opportunity for recreation than when the three-hour schedule is used. Later the "freedom bottle" may be introduced, that is a bottle of modified milk to be given the baby for one feeding. This allows the mother to get away occasionally for the evening or the afternoon. To accustom the baby early to take part of its food from a bottle means less strain later at weaning.

NURSING TIME-TABLES

| Three-hour Schedule | Four-hour Schedule |
|------------------------|-----------------------|
| 7:00 A. M. | 6:00 A. M. |
| 10:00 A. M. | 10:00 A. M. |
| 1:00 P. M. | 2:00 P. M. |
| 4:00 P. M. | 6:00 P. M. |
| 7:00 P. M. | 10:00 P. M. |
| 10:00 P. M. | |

The baby who is hungry, who has a keen appetite and who is able to digest and assimilate its entire meal, is the baby who will thrive the best. It should be hungry for and especially enjoy its last meal of the day, for then it will be satisfied for the night and will sleep well. It is also true that if a child be allowed longer hours of sleep during the day without being waked for feeding he will be more likely to sleep through the night. The ten o'clock feeding should be omitted as soon as the baby will sleep through the night without it.

Young babies do practically nothing but eat and sleep. That is one reason why they grow so rapidly. Plenty of sleep is necessary, yet it is a good plan in an occasional case to keep baby awake during the early part of the evening so that when the evening meal is completed it will be ready to go soundly to sleep for the entire night.

If baby is restless and seems to be hungry during the first three days it may be well to give it by bottle teaspoonful doses of warm water, either boiled and cooled or distilled, but nothing else. Many mothers give different decoctions or "teas," but all of these are more or less harmful to the little one. The warm or barely cool water will be sufficient to satisfy the infant.

Occasionally a mother will have trouble in teaching her baby to take the nipple. It requires considerable patience on her part, but it can be accomplished in the end provided the nipple is of suitable size for the baby to grasp and provided the breast yields milk without too great effort. The baby always should be held up to the nipple in a semi-upright position, whether the mother is sitting up or lying down. The baby also should always be comfortably supported when given the breast, as it will be able to nurse better and be more contented, and will not, because of fatigue or discomfort, discontinue nursing when only partially through.

Beginning
of Nursing

It is a better practice to alternate the two breasts at succeeding feedings, than to give half of each feeding from each breast or to nurse twice at adjoining feedings from the same breast. This is because the supply of milk should be well drained in order to maintain the activity of the glands, and because the proportion of fat in the milk is greater toward the end of the breast supply than at the beginning of the feeding.

If the baby is given only part of the milk in each breast the properly balanced proportion of nutritive elements will not be secured. If the breasts are not nursed comparatively dry at each feeding their ability to secrete reduces and there is likely to be a premature complete drying up of the breasts.

The duration of each feeding varies with the strength and activity of the child, the amount of milk secreted and the ease with which the milk flows from the nipple. Under ordinary circumstances from ten to twenty minutes is long enough for any infant to nurse. If a baby does not seem to be satisfied after twenty minutes of nursing (and the time normally should never be longer than this), and if he cries or frets after being taken from the breast it is usually because the supply of milk is deficient in quantity or quality. Attention to the health of the mother becomes necessary then. If this fails to improve the quantity and quality of the milk it may become necessary to place the baby partially or wholly upon the bottle. In many cases, however, a combination of breast-nursing and bottle-feeding will be satisfactory when entire breast-nursing is impossible.

**Baby's Sleep
and Nursing**

It always has been a question as to whether it is better to awaken a baby for its feeding when the time for feeding comes or to let it sleep on until it awakes of itself. If punctual adherence to the regular schedule of feeding hours and bathing periods is to be continued it will be better to awaken the baby, for the little one can be trained to awaken at the proper time and to sleep in the intervening periods. As a rule it will be necessary to awaken the infant only a few times before it acquires the habit of waking at the proper time.

The mother should do everything possible to maintain the highest degree of health and vitality, for upon these depend to a great extent the quality and the quantity of her milk. She should get as much outdoor air as possible and select a thoroughly nutritious and wholesome diet. A diet containing considerable proportion of raw foods is best, with fair amounts of milk and nuts, these foods being best for encouraging the secretion of milk.

Recreation and rest also are of great importance. Freedom from worry is an important factor, for anything which affects the nervous system is likely to affect the milk supply

unfavorably. The quantity of milk secreted can be influenced to a certain extent by the amount of fluids taken by the mother, increasing or decreasing as desired. The amount of fat in the milk is influenced by the mother's diet. The protein or albumin of the milk can be regulated partially by her diet and partially by her exercise, especially out-of-door exercise.

It will be well for the nursing mother to read carefully the subject of diet, in Volume II. Sufficient to say here that she should avoid certain articles of food or food adjuncts, including and perhaps especially those which have a particularly strong taste or odor, such as condiments, also alcoholic drinks, and so-called tonics containing alcohol, as well as all drugs. Through her milk these substances may have very detrimental effects upon the nursing child.

Diet and
Mother's
Milk

Rarely will certain normally wholesome foods change the character of her milk and cause colic in her baby. However, these vary with different women, so each mother herself will need to determine which they are. The majority of babies are not similarly affected indirectly by these foods. Yet occasionally some article of food eaten by the mother will alter the taste of the milk to such an extent that the child will nurse less than it should. Onions, cabbage, cauliflower and turnips are among these foods. However, the majority of women may allow themselves any food that ordinarily is considered wholesome, without fear of affecting the baby harmfully.

Nervousness, anger, grief and excitement on the part of the mother impair the quality and quantity of milk. A baby



As a rule, the baby can best use its nursing bottle by lying on the side, as here shown.

should not be nursed when the mother is emotionally or nervously upset, nor when she is physically exhausted.

Wet Nursing

Wet-nurses. If a mother's milk is unsatisfactory or if it fails, a wet-nurse is preferable to artificial feeding provided an ideal wet-nurse can be procured. It is not easy to procure such a nurse, as there are several important requirements which many possible wet-nurses cannot meet at the time. In the first place, the wet-nurse should be at a period of lactation that corresponds as closely as possible with that of the mother, so the quality of the milk will be correct for the age of the infant.

She must be in normal health, with no taint of certain diseases in her blood, a thing which must be satisfactorily established by proper tests before she can be considered at all. There should be no constitutional disease; she should be of a calm, quiet and equable temperament, not excitable; she must be scrupulously clean; and not over thirty-five years old. A woman capable of nursing a baby, having a sufficient quantity for her own and another or having lost her own, and willing to nurse a baby not her own, who has all the above requirements at the time her services are required, is not easy to find; but if found the baby will prosper better on her milk than on practically any possible artificial feeding.

Holding the Nursing Child

Holding the Nursing Baby. The baby should lie upon its right side when nursing from the left breast, the mother's left arm supporting its head. The opposite position is taken when the right breast is being nursed. Sometimes the weight of its large liver causes the baby to vomit when it lies on the left side, in which case it should lie on the right side, with its legs under the mother's right arm.

For the first nursings the mother may either lie upon her side or be propped up with a pillow. When she sits up, later, leaning slightly forward will point the nipple somewhat downward, making nursing easier for the baby; but it is better that she support part of the breast with her fingers so the baby's nose will not be pressed upon, to interfere with breathing.

If the baby nurses too greedily the breast should be taken from it occasionally. This also allows it to get its breath. Pressure upon the base of the nipple with finger and thumb will prevent too rapid flow of the milk. In case of insufficiently rapid flow, or of a delicate child that cannot nurse with

sufficient vigor, one hand may lightly massage the breast during nursing to bring milk into the nipple in greater amounts.

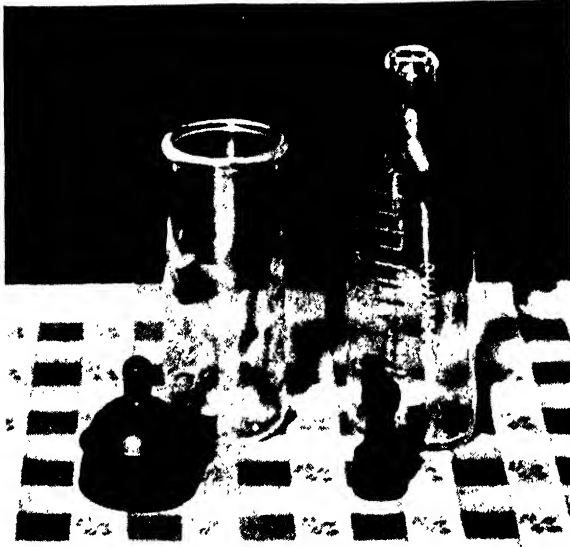
WEANING.—Weaning will depend upon the mother, the quantity and quality of milk and the progress previously made by the baby. As a rule a baby should be nursed for the first ten to twelve months if possible, after which it can be safely weaned. Some mothers have no difficulty in nursing their babies for a much longer period, even as long as two years. This is not advisable, though rather than wean a baby at the proper age in hot weather it often is advisable to continue breast-nursing until the end of summer, unless the baby is perfectly healthy and has had no trouble with its digestive organs.

It is common for mother's milk to begin to fail in quantity or quality, or both, about nine months after the beginning of lactation. Since the baby's needs are increased at this time, under such circumstances it is necessary to wean it, or supplement the breast feedings. Nursing becomes a serious drain upon the mother when her milk begins to fail appreciably. Even though the breast milk be fully nourishing, most babies will be ready to wean at the age of ten to twelve months.

The practice urged by many physicians of weaning at some definite time between eight and twelve months should not be an unalterable rule. If a baby is developing great restlessness, sleeplessness, irritability and peevishness, irregular bowel action, lack of energy, loss of color, or loss of weight, or if its dentition is appreciably delayed, a change of feeding is indicated, so it should be weaned. If the mother becomes pregnant again, or has inflamed or abscessed breasts, or suffers from severe illness or nervous condition, weaning is to be recommended.

Whenever possible it is advisable to make weaning gradual, taking perhaps three months. This makes the process easier upon both the mother and the baby. Usually the doctor and the nurse who attend the mother advise the giving of water from a bottle from the day of birth. Thus it grows accustomed to the bottle before actually weaned. The best weaning method consists in a slow shift from nursing to the bottle. One bottle is substituted for one feeding. Then two bottles and two breast feedings are given, etc., till the baby

**Weaning and
Bottle-
Feeding**



The wide-mouthed bottle shown with large nipple at the left, is considered preferable because it may be more readily cleansed than the small-neck type of bottle. The bottle at the right is of the sort used for boiling and pasteurizing milk. With it appears a small-sized nipple not practical because of the difficulty of attaining cleanliness in its use.

Overfeeding
and Irreg-
ularity

finally is fed entirely from the bottle. Raw or unpasteurized milk should be used if a safe quality is available. It may be given undiluted if the child is from ten to twelve months old.

The amount of food should correspond to that given to the usual bottle-fed infant of the same age (See Feeding Table). If weaning is done before this time the food

prepared for it should be the same as for a bottle-fed baby of the same age. If pasteurized milk is used it is especially important that the juice of one-half to one orange be given during the day. The baby should have had sufficient orange juice to have become accustomed to it before this time, so that the juice need not be diluted.

If it is difficult to get the child to take the artificial nipple and to nurse from the bottle, let it become really hungry and it will not refuse. It is best to shorten the time of breast nursings when beginning the bottle-feeding. The bottle milk should be warmed to the temperature of breast milk.

If full-strength cow's milk is used it is especially necessary to guard against overfeeding, also to give water at fairly frequent intervals throughout the day.

There should be a more or less complete set of teeth before the child ceases to take milk from the bottle and depends wholly on solid food and milk drunk in adult fashion.

BOTTLE-FEEDING.—Cow's milk and human milk contain the same nutritive elements and the same chemical properties,



PHOTOGRAPH UNDERWOOD & UNDERWOOD

PLATE 54. An African bridegroom proffering goats in payment for a wife.

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but in different proportions. Therefore cow's milk unmodified is not ideal for the young infant, though when properly modified it gives satisfactory results. When possible every baby should be nursed at the breast for at least the first three months of its life in order that it may get the proper foundation for future growth, development and health. This is especially so in the case of a weak or a puny baby, for which, particularly, a wet-nurse is to be strongly recommended in case the mother dies or is ill or has a deficient milk supply. A strong and healthy babe will thrive on modified cow's milk from the start if it is not overfed and if it is properly taken care of. With proper care in the modification, cow's milk may be made to agree with practically any baby, strong or puny.

Overfeeding and irregularity are even more harmful for the bottle-fed baby than for the breast-fed one, for at best the former gets an unnatural nourishment and cannot stand these abuses so well. What has been said regarding these practices in breast-nursed infants applies even more forcibly in case of bottle-fed babies.

While a great many artificial baby foods are on the market, most of them being combinations of malted grains and sugar with cow's milk, it is the consensus of opinion among pediatricists (baby specialists), physicians and authorities in general that, in most cases if not in all, modified cow's milk (or unmodified in some cases) gives very much better results. Some of these artificial foods have seemed to prove satisfactory in certain selected cases. But most babies fed on them become fat. Fatness is absolutely no indication of health, nor of normal nourishment. In fact, a baby with rolls of fat on its body cannot be normally healthy. It must be admitted, however, that there is an occasional case, perhaps chiefly of digestive weakness, where these artificial foods have proved more suitable than cow's milk, regardless of how the latter may be modified. The particular food which will be best for baby will have to be determined by experiment, but in the experimenting start with cow's milk and change to some one of the artificial foods only if and when found necessary.

Artificial
Foods for
Infants

The following table shows approximately the proportion of ingredients in human milk and in cow's milk per thousand parts:

1766 HUMAN AND OTHER MILK

ANALYSIS OF HUMAN AND COW'S MILK

| | Fat | Proteins | Sugar | Mineral Salts |
|----------------------|----------|----------|----------|---------------|
| Human Milk | 38 parts | 17 parts | 60 parts | 2 parts |
| Cow's Milk | 31 " | 36 " | 45 " | 7 " |

Ingredients
of Milk

From this comparison it is seen that cow's milk contains a higher percentage of solids than does human milk, especially a higher percentage of proteins. For this reason it must be thinned with water to make it more easily assimilable for the young baby's delicate digestive apparatus. Mother's milk contains more sugar than cow's milk, hence the latter must be sweetened a little to make it more nearly equivalent to mother's milk. Milk sugar, malt sugar or corn sugar is used for this purpose. Cane sugar is likely to ferment and cause digestive and general trouble.

Cream in
Baby's Diet

As a rule the digestive system of a baby will digest fat readily. To bring up the fat content of cow's milk, which the table shows to be somewhat lower than in human milk, one may use a larger proportion of cream than found in the whole milk. Babies usually can digest diluted cream (top milk) from the first day or two. Hence if a baby is feeble and cannot be breast-nursed it may be well to feed it in the beginning with a fairly large percentage of cream, well diluted and with the addition of milk sugar and a little lime-water, the latter frequently having the effect of making cow's milk more digestible.

As the baby grows older and its digestive powers become stronger the proportion of milk in the feedings can be increased, while the relative proportion of the cream will be reduced. Many babies cannot assimilate an increase in cream, for the cream of cow's milk is in larger globules and therefore often more difficult to digest than the fat of human milk.

Cream, or milk rich in cream, may be obtained by dipping a special cream dipper into the top of a regular milk bottle. Another way is to skim the cream from the top of milk allowed to stand in a flat basin or a crock. For practical purposes, however, it is as well to pour out of the milk bottle in which the cream has risen to the top. The first portion poured off will be rich in cream, while the percentage of fat becomes progressively less as more is poured out. A satisfactory plan, there-

fore, is to pour a little from the top of the bottle at first and later gradually increase the amounts as the child gains ability to digest larger quantities of milk. It will be found that some children need less cream, in which cases it will be necessary to have the milk diluted with water.

The way to prepare the food is as follows: After boiling and cooling the water add the milk sugar and the lime-water, and finally the milk, bottling it in the nursing bottles (which must be thoroughly clean) and corking each with tight wads of sterile cotton or gauze. There should be one bottle for each feeding for the twenty-four hours. They are to be kept on ice until ready for use. Just before feeding the milk of one bottle is to be heated to 98 to 100 degrees Fahr. Either the milk may be poured out and warmed while being carefully stirred over a low fire, or (better) the bottle may be placed upright in a vessel of warm water and warmed to the required temperature. Test the milk by pouring a few drops on the inner surface of the elbow. Bottles and nipples must be boiled each

Temperature
of Milk



The flattened bottles shown here with rubber corks in sterilizing boiler are kept cold until needed for baby's use. At nursing time they are emptied into the round bottle fitted with large nipple.

1768 MODIFICATION OF MILK

day in water containing baking soda, and carefully rinsed.

The appended table is a satisfactory guide in most cases. Top milk means that which is poured from the top of the bottle and which is rich in cream.

TABLE FOR MODIFICATION FOR BOTTLE-
FEEDING, AVERAGE INFANT

| Age | Top Milk Ounces | Milk Sugar Ounces | Lime-Water (if Needed) Ounces | Boiled Water Ounces | Amount Each Feeding Ounces |
|--------------|-----------------------|-------------------------|-------------------------------------|---------------------------|----------------------------------|
| Up to 1 mo. | 5 | 1 | 1 | 15 | 1½ to 2 |
| 1 to 2 mos. | 7 | 1 | 1 | 15 | 2 to 3 |
| 2 to 3 mos. | 10 | 1 | 1 | 15 | 3 to 4 |
| 3 to 4 mos. | 15 | 1 | 1 | 15 | 4 to 5 |
| 4 to 6 mos. | 20 | 1 | 1 | 15 | 5 to 6½ |
| | Whole Milk | | | Barley Water | |
| 7 to 8 mos. | 25 | 1 | 1 | 10 | 7 to 8 |
| 8 to 10 mos. | 28 | 1 | 1 | 10 | 7 to 8 |
| 10 mos. & up | 32 | 1 | 1 | 8 | 8 to 10 |

Good and Bad
Methods of
Feeding

The schedule suggested earlier for the number of feedings daily for nursing babies may be followed for bottle-fed babies also, always taking care not to overfeed. The increase in the amount as well as the increase in the strength of food should be made gradually. Instead of jumping from one quantity to the next larger one, do not give the entire larger amount at once; give the increase an ounce at a time and increase once or twice a week, depending upon the child's condition and digestion. If a baby is inclined to regurgitate some of its feeding within a minute or two after taking it, the cause usually is too large a feeding. In this case the milk vomited will not be sour and the child will not show signs of indigestion. The remedy is to give from one-half to one ounce less food at each of the next few feedings.

While to the uninformed it may seem to be a trivial matter, an infant or a young child should never be given milk from a spoon. When taken from a bottle the necessary sucking process forces the saliva into the mouth where it mixes with the milk and there brings about important digestive changes. For this reason the nipple should not have such large holes that the milk flows out without the child's effort.

Another matter of great importance regarding a child's feeding is that one should never fear to fast a baby or a young child for a day or two at certain times when the fast seems indicated. The fast is of great value in correcting minor ailments, and even the serious ailments of infancy and childhood. A fast of one or two days will have greater corrective effect in the case of infants and young children than a fast several times this length in the case of adults. Often a little diluted orange juice may be given instead of a complete fast, though the complete fast, except that water should be given freely, may be given safely for a day or two in any case except extreme malnutrition and emaciation. Most cases of malnutrition and of inability to digest food properly are the result of overfeeding. Reducing the quantity at each feeding sometimes helps. It is stated that nine-tenths of the infantile deaths are due to injudicious feeding or overfeeding. Most of the disturbances of infants and young children will be cured at once by a fast of a day or two. Longer fasts may be given with benefit in the more severe and serious ailments if diluted orange juice is given, together with plenty of water.

Avoiding
Overfeeding
Infants

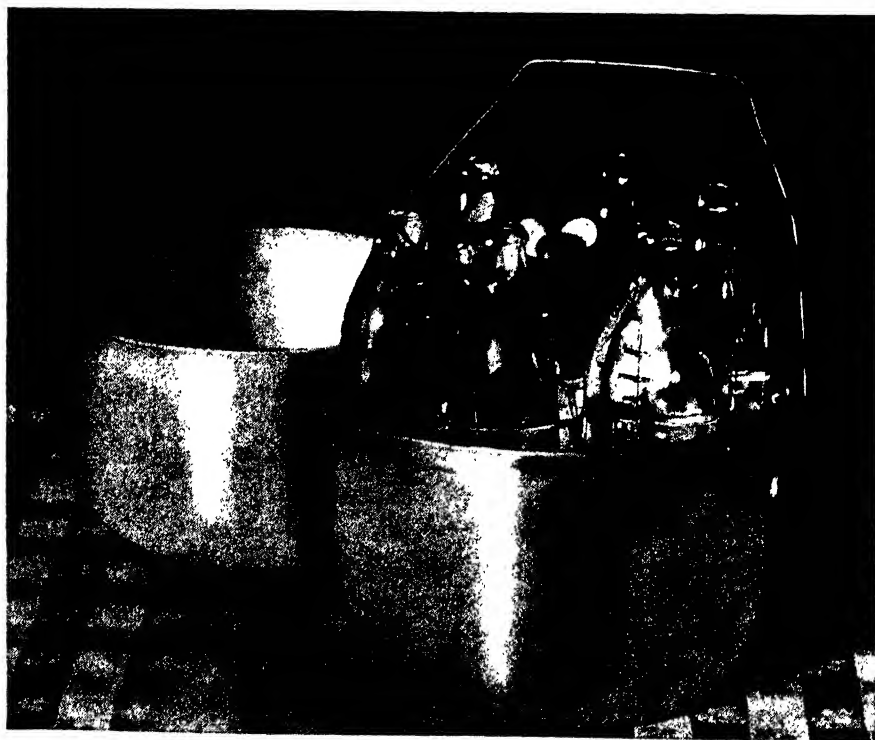
Therefore, in all cases of infantile illness the correct thing to do is to cleanse the stomach by the fast and also to encourage vomiting by tickling the throat after the child has taken enough water to fill its little stomach. These two measures, combined with bowel cleansing with the small bulb syringe, will set the child right again within a short time and prevent the development of some more serious complaint. If at any time you are in doubt as to the advisability of giving the baby a feeding, on account of some little disorder, it will be safe to resort to feeding with boiled water, properly aerated and containing a little strained orange juice or a little honey.

The nipples used for artificial feeding should always have small perforations so that the milk cannot be taken too rapidly. The baby should require from ten to twenty minutes to finish each feeding. The best way to test the rapidity of the flow from the nipple is to turn the bottle upside down; the milk should come from the nipple in drops; it never should run in a stream. Unperforated nipples can be bought and perforated at home, though the "anti-colic nipples" have sufficiently small holes. If the nipples are perforated at home they should first

be stretched over a cork or the eraser end of a lead-pencil and punctured from once to three times in the tip end with a fine needle which has been heated red hot. After nipples have been used (and after purchasing and before using them) they should be turned inside out and thoroughly scoured, then sterilized by boiling. While not in use they should be kept in a solution of boric acid. Each time before using they should be rinsed in boiling water.

**Quality of
Milk**

QUALITY OF MILK.—This is of the utmost importance. The milk should not only be perfectly fresh, but prepared for the baby under the most sanitary conditions. The hands of the person preparing it, as well as every utensil used in its preparation, should be scrupulously clean. Although in cities the milk is subjected to careful inspection and tests before it is delivered to the consumer, it is best, when possible, to secure



This form of aluminum sterilizer when covered with the lid shown in the background affords a means of thoroughly cleansing the bottles or of heating the child's milk to the point of pasteurization. In the center is found the round bottle used with nipple for the child's feeding. The sterilization of corks is important also.

certified milk for baby's use. All milk should be kept constantly on ice, and it should not be more than one day old for any of the feedings. That is, one day's milk should not be used the next day, even though it may have been kept on ice. This is particularly important during the summer months.

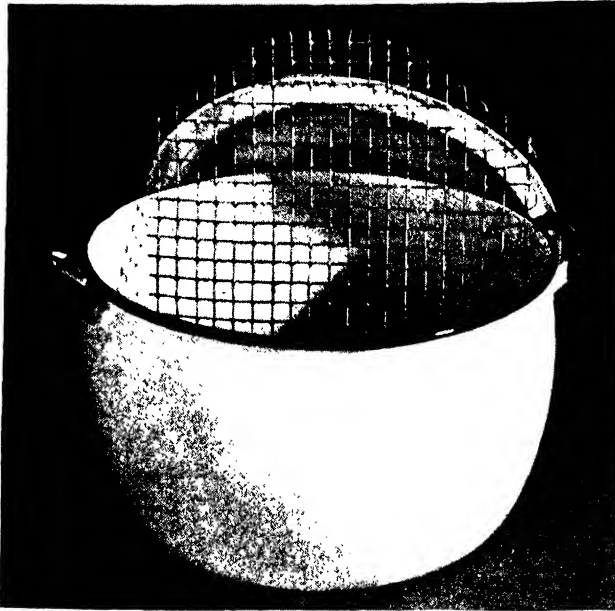
HOME PASTEURIZING.—Many people are under the impression that pasteurized milk is sterilized milk. It is by no means sterilized. In the process of sterilizing, the milk is boiled (at or above 212 degrees) for an hour or more. Though this process destroys germs, it also destroys or greatly reduces the vitamins and makes the casein much less digestible than in unboiled milk. In the process of pasteurizing the milk is heated to a temperature of only about 154 degrees, for thirty minutes. By this process many germs are destroyed but the nutrient elements are unaffected and the vitamins not materially reduced except the anti-scorbutic vitamin. For this reason orange juice is especially important when pasteurized milk is used. Pasteurized milk will keep much longer than unpasteurized milk.

Home
Pasteurizing
of Milk

Milk is an excellent culture medium for germs; hence if the purity of the milk is at all in doubt pasteurizing is highly desirable. In large cities all milk, except certified, is pasteurized before delivery. It is difficult, in fact almost impossible, otherwise to obtain absolutely pure and fresh milk in the cities, for the milk must be transported many miles, and the time required for transportation favors the multiplication of germs that may have been present at the start.

Certified milk is raw milk that can be obtained in cities, but at much higher prices than uncertified, because of the extra care required to produce it and the restrictions placed by law upon the use of the term "certified."

If neither certified nor pasteurized milk can be obtained and if there is reason why the supply should be pasteurized it can easily be processed in the home. The baby's modified milk should be put in clean bottles each holding the quantity to be used at one feeding. These bottles should then be placed upright on a false bottom in a pot or a pail of water, for the pasteurization. The false bottom is to keep the bottoms of the bottles off the bottom of the pot so the heat will come to them only through the water, not directly. This false bottom may



Simple form of home pasteurizer improvised by cutting a wire screen to fit the bottom of a boiler of sufficient height to permit closing its lid over upright milk bottles. In operation the wire screen rests on the bottom of the boiler, the bottles of milk standing upright in water with the lid over boiler and its contents.

Pasteurized
and
Evaporated
Milk

be made by punching holes in a tin pie-pan or a shallow pan, to be placed upside down in the bottom of the pot. The water in the pot should come up to the level of the milk in the bottles and a thermometer should be placed upright in the pot among the bottles.

heated to 154 degrees and maintained at that temperature for thirty minutes, or to 167 degrees for twenty minutes. The heat is best maintained by putting the vessel and bottles in a fireless cooker or by wrapping a heavy blanket about them, though if one is careful to maintain the specified temperature the vessel may remain over the fire.

The water should be heated to 154 degrees and maintained at that temperature for thirty minutes, or to 167 degrees for twenty minutes. The heat is best maintained by putting the vessel and bottles in a fireless cooker or by wrapping a heavy blanket about them, though if one is careful to maintain the specified temperature the vessel may remain over the fire.

After the specified period the vessel and the bottles are removed, the bottles taken out and rapidly cooled by placing them in cold water, then placed in the ice-box until needed. The lower temperature specified above for pasteurizing is to be preferred, as the vitamins undergo less change at this temperature. Properly pasteurized milk will keep on ice for two or three days or longer, though in summer it should not be more than one day old when used for a baby. For older children it may be two days old in winter.

EVAPORATED MILK.—Among the poorer classes of people, especially in large cities, condensed and evaporated milks are much used as infant food. They are fairly satisfactory in some

cases, but are not to be advised if fresh milk can be obtained. They may be used temporarily, as when traveling or when there is interference with the regular supply of milk. The use of evaporated milk gives fairly good results when orange juice also is given regularly. Small-sized cans are preferable to the large size because little or none need be stored from one feeding to the next, thus reducing the risk of souring or becoming germ-laden.

Sweetened condensed milk is even less desirable than evaporated or dried milks, as it contains a considerable amount of cane sugar, often close to 50 per cent. Not only is the cane sugar not the best type of sugar for the baby, but the proportions of it are far too high for any type of sugar.

When using evaporated milk it is necessary to use milk sugar or corn sugar or malt sugar, as in modifying plain milk, using about one ounce to each twenty ounces of food.

While some babies become constipated on breast milk, many more are constipated by artificial feeding. Strained orange or prune juice used in proper dilution according to the child's age usually will correct this condition. Sometimes it may be advisable to reduce the sugar content of the milk; in other cases the cream content may need to be either decreased or increased, different babies being affected differently by the cream.

THE FEEDING OF OLDER CHILDREN.—Childhood and youth are periods of growth, hence the principles governing the feeding of children and youths differ somewhat from those governing adult feeding; but many factors of diet are the same for both. Regardless of the age, feeding must be done with discrimination. Errors of diet are detrimental at any time in life, but especially in early, immature life.

Feeding
Older Chil
dren

Older children habitually overeat if left to themselves or if not controlled. They must be guarded against this, as it leads to digestive disturbances and other abnormal conditions which interfere with proper development. A growing child is likely to be hungry often, yet eating between meals will upset the digestion and prevent the proper eating of appropriate meals at meal-time, especially when the eating between meals is of sweets. These are particularly desired at this time of life but bread and jam, bread, butter and sugar, bread and preserves,

Diet in
Childhood

PHOTOGRAPH UNDERWOOD & UNDERWOOD

The four German children shown are of the same age. The two smaller children were undernourished in infancy and early childhood; the two taller children show the result of normal nutrition and care from birth, as well as hereditary traits of stature.

cake, crullers, or candy may cause trouble in many children if eaten at any time, and will do so eventually in all children if frequently indulged in, particularly between meals.

All children should be restricted to a comparatively limited variety of plain, wholesome foods, for too great a variety and rich or fancy dishes will greatly impede their development and impair their health. Variety from meal to meal and from day to day, however, is beneficial, if all foods are wholesome. Candies and other white-sugar products should be

taken rarely and only in small amounts if at all, and all rich desserts should be denied children. Also the meal-times should be regular. Nothing more than fruit or, at times, milk should ever be allowed between meals.

Throughout childhood milk should be used freely as a food. It is of the utmost importance until the child has acquired a full set of teeth, and should be continued in considerable amounts until the second set of teeth are in. Until at least the

age of two the milk should be given from a bottle. It will digest better when taken this way than when gulped down as all young children will take it from a glass or a cup.

In addition to milk, fruits, vegetables, whole-grain products and eggs are the best foods for childhood. However, as the child does not need the egg-white it should be given only the yolks, for the most part at least. Cereals should be served with cream or milk; never with sugar. If sweetening is craved—and some sweet food is necessary for growing children—honey, figs, dates or raisins may be used. Occasionally brown sugar, maple sugar, or a good molasses may be allowed, all being far better than white cane sugar. Honey and all sweet fruits will supply the childhood demand and need for sweets. The other three sweets just mentioned may be permitted occasionally for variety if thought advisable, but it would be better if sugar were entirely dispensed with in the diet of children.

Eggs and
Grains in
the Diet

Children even more than adults crave variety in their diet. Provided the selection of food is proper for health and development, when a child becomes old enough to help make a selection of its foods it should be allowed some privilege in this direction. A child often is guided better in its choice of food by the needs of its body than by a parent's ideas. This rarely can be said of adults. If the diet has been properly selected from the first, thus training the child to know only the best of foods, the parents may depend to a considerable extent upon its desires and selection. Of course, the child cannot be allowed to rule the food department of a home through its likes and dislikes of foods; it should be so trained to a normal appetite and desire for foods that it will have no abnormal appetite, either as to quantity or choice of foods.

No child should be forced to eat what the parents want him to eat simply because they want it or think it should be best for him. He may eat it with relish at most times, but at other times he may prefer something else as a result of definite body needs. Surprisingly often he will want something simpler and better than that offered him. At no time should the child's desires be acceded to if he wants deficient foods or foods that will tend to disturb digestion. If there ordinarily is a sufficient variety of wholesome foods from day to day and

if the child has been properly trained the problem of feeding usually will not be difficult of solution.

Natural
Foods in
Childhood

Children who have been fed natural foods usually have comparatively normal appetites. Hence a child should not be encouraged to eat more than it craves. If a child should desire to miss an occasional meal, as will be the case with most children, the parents should let it remain unfed. If for a day or two it desires little food, perhaps nothing but a little fruit or milk, it should not be urged to eat more. By taking the reduced quantity it may escape digestive or other trouble of an acute nature—which forced feeding, especially at the time, will be likely to bring on.

If the child is underfed, either from having eaten little or from having deficient foods, he probably will not need to be coaxed to eat if natural foods are placed before him and, perhaps, made attractive. The appetite of any child usually comes back strong after missing a meal or two or after eating sparingly for a short time. A child should know the luxury of a real hunger appetite—in fact this should be such a common experience that it would not be a luxury.

When a child is normally active and is not forced to eat he usually will have a sufficient appetite to eat and enjoy his meals. The giving of acid fruit juices, diluted or not, according to the age of the child, usually will help bring about a normal appetite, at the same time being a definite benefit to digestion and health. Giving nothing but milk (at hourly intervals throughout the day) and some acid fruit often will be helpful in bringing about a normal appetite for other foods, in bettering the digestion and in improving the child's health generally.

Every day when on a full diet a child should receive milk or milk dishes or eggs; some whole-grain product; butter or cream or egg-yolk; root or green vegetables or both; juicy fruit; sweet fruit or other natural sweet. By varying the foods in each class and by giving as nearly as possible a quart of milk daily one can be sure of providing an adequate diet.

The best means of preparing eggs is by coddling. Place the eggs in boiling water sufficient to cover them well and immediately remove from the fire, letting them stand for five or six minutes. The contents of the egg will thus be jellied but

not hard. Another good method is to cover the egg with cold water, place over a fast fire until the water comes to a boil, then at once remove the egg and place it for a moment in cold water to prevent further cooking.

Children should never be given cereals before the age of one year, preferably not before eighteen months or two years. The cooked whole-grain cereals are best at first, though dry whole-wheat toast or zwieback may be given as early. The latter may be given at the beginning of a meal for the child to chew on, followed later by egg and milk or fruit and milk.

During and after the second year juices of other fruits than oranges may be given, or the whole fruit if desired. Dates soaked in water or milk and run through a sieve are wholesome and tasty. They should be given unsoaked at times,

Fruits and
Fruit Juices



The "play-pen" affords the baby a chance to move about with activity while protecting it against strain, which may result in accident or injury.

also. Spinach and tomato juices may be given as early as the beginning of the second year, or even earlier when given alone. The bulk of no vegetable should be given until there are teeth with which to chew it. Mashed potato, taken from baked potato as near to the skin as possible and prepared by mixing with cream or with milk and butter, may be given toward the eighteenth month. The best vegetables for this time are potatoes, squash, spinach, asparagus tips, and peas, all to be well mashed at first. The best means of preparation is by baking, the vegetables to be thoroughly cooked. Four meals may be allowed daily during the second year in an occasional case, but as a rule three meals are sufficient if proper foods are given.

During the third year and later the feeding may be made more liberal, but white bread, pastry, cakes, pies, and other white-flour products as well as fried foods, condiments and rich foods should be avoided. The menus should be simple. Soups, such as purées of peas, asparagus and celery, will be of great value. If necessary these may be flavored with tomato or onion or other natural appetizers.

Nuts, if well chewed, are wholesome, but they should be eaten only at meal time, never between meals. Pulverized nuts are better than unground ones for young children, who are inclined to slight mastication. Nuts are very nourishing and concentrated food. If they agree with the child they will be valuable food. They should be taken sparingly with meals in which milk is used; but they should not be used in large amounts at any time.

**Desserts and
Liquid Foods**

Only plain and simple desserts should be allowed the child. Baked apple, peach and pear are good. They should be eaten without sugar, and with little cream. Prune-whip and peach-whip also are excellent. Raisins, dates, figs and fresh raw fruits are the most satisfactory of all desserts, though any cooked fruit may be allowed. Whole rice, plain custards, gelatin and other simple desserts of this kind are permissible, but are not to be used when there are starches in the main meal. A little pure ice-cream, preferably home-made, may be permitted, but only once in every few days.

The only liquids to be allowed children are water, milk, and fruit juices, plain or diluted. Milk should never be given directly from the ice-box, though it is necessary only to take the



PHOTOGRAPH EWING GALLOWAY

PLATE 55. Wedding procession in Sumatra. The cow is the husband's gift to the bride.

Indra K. S. P. S. P. S. P.

chill off after the child has reached the second year. Before this the milk should be slightly warmed. No ice-water, nor even very cold water should be given a child, and cold foods also should be avoided, though unless they have been in the refrigerator such foods as fruits are not likely to be too cold.

Teach children to chew their food thoroughly. Have only pleasant conversation at the table. Do not constantly nag at the children, whether regarding their manner of eating, or of chewing, or their conduct. Keep them interested during the meal. This will help them to take plenty of time and will aid in securing better mastication. When there are several children it is a good plan to get them interested in trying to see which can masticate his bread the longest before it is so softened that it must be swallowed. (See also *Diet* in Volume II.)

Mastication

AVERAGE WEIGHT INCREASE OF CHILDREN

| Year | Boys Pounds | Girls Pounds | Year | Boys Pounds | Girls Pounds |
|---------|----------------|-----------------|-------------|----------------|-----------------|
| First | 13 | 13 | Tenth | 5½ | 5 |
| Second | 5 | 5 | Eleventh | 5½ | 6 |
| Third | 4½ | 4½ | Twelfth | 6 | 8 |
| Fourth | 4 | 4 | Thirteenth | 7 | 11 |
| Fifth | 4 | 4 | Fourteenth | 9 | 11 |
| Sixth | 4 | 4 | Fifteenth | 12 | 9 |
| Seventh | 4 | 4 | Sixteenth | 15 | 6 |
| Eighth | 4½ | 4½ | Seventeenth | 15 | 4 |
| Ninth | 5 | 4½ | Eighteenth | 6 | 3 |
| | | | Nineteenth | 4 | 2 |

Weight
Increase in
Children

HYGIENE OF CHILDHOOD.—In order that a child may have the highest possible degree of health, with abundant vitality and energy, it is necessary that he have abundant pure air, air and sun-baths, daily water-baths, a natural, well-chosen diet and wholesome exercise.

Air-Baths. We live constantly in the air. But our bodies usually never feel the exhilarating influence of nude air-baths. A child should have an air-bath every day of the year, regardless of the temperature of the air. If it is entirely nude it will not be in danger of "catching cold." Colds are due to unequal distribution of clothing combined with improper diet and neglected elimination. With the temperature of the room comfortable, a child may romp and play in the nude with the

NOTE.—The standard or normal weight for a boy is found where the horizontal column opposite his height crosses the vertical column under his age. The age is taken at the nearest birthday. He should stand straight and barefoot, in taking the height. Illustration: The standard weight for a boy 57 inches high and 13 years old is 83 pounds.

[illegible]

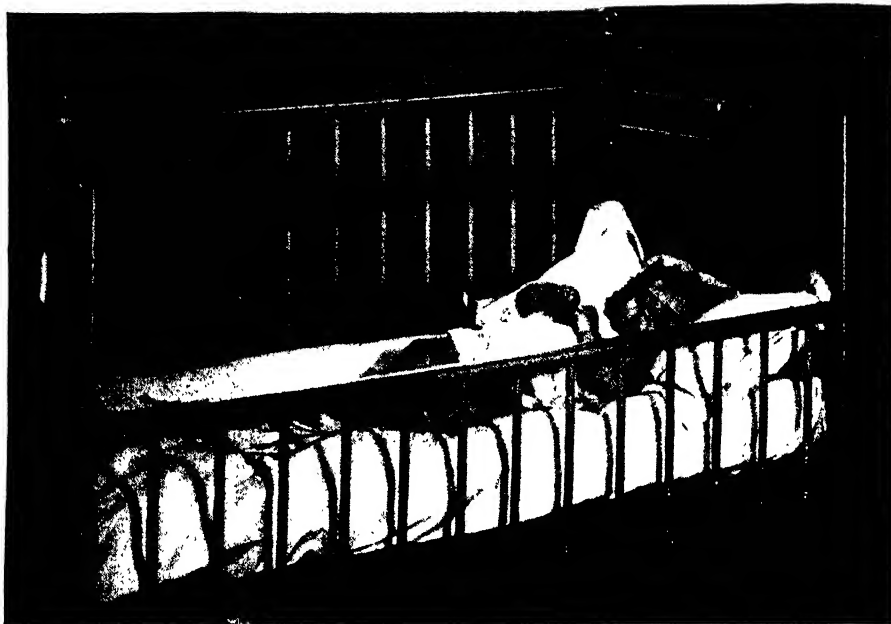
HEIGHT AND WEIGHT TABLE FOR GIRLS

NOTE.—The standard weight for a girl is found where the horizontal column opposite her height crosses the vertical column under her age.* In measuring for height the girl should stand straight and be in her bare feet. Illustration: The standard or normal weight for a girl who measures 50 inches high and who is 9 years old is 59 pounds.

| Height Inches | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs |
|------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 39 | 34 | 35 | | | | | | | | | | | | |
| 40 | 35 | 37 | 38 | | | | | | | | | | | |
| 41 | 39 | 39 | 40 | | | | | | | | | | | |
| 42 | 41 | 42 | 42 | | | | | | | | | | | |
| 43 | 43 | 44 | 44 | 44 | | | | | | | | | | |
| 44 | 45 | 46 | 46 | 46 | | | | | | | | | | |
| 45 | | 47 | 47 | 47 | | | | | | | | | | |
| 46 | | 48 | 49 | 50 | 52 | | | | | | | | | |
| 47 | | 49 | 50 | 51 | 53 | | | | | | | | | |
| 48 | | | 52 | 53 | 54 | 55 | | | | | | | | |
| 49 | | | 54 | 55 | 56 | 57 | | | | | | | | |
| 50 | | | | 57 | 59 | 60 | 60 | | | | | | | |
| 51 | | | | 60 | 61 | 62 | 63 | | | | | | | |
| 52 | | | | 63 | 65 | 66 | 67 | 67 | | | | | | |
| 53 | | | | | 67 | 68 | 68 | 69 | | | | | | |
| 54 | | | | | 69 | 70 | 71 | 71 | 72 | | | | | |
| 55 | | | | | | 71 | 72 | 73 | 74 | 75 | | | | |
| 56 | | | | | | 75 | 76 | 77 | 77 | 79 | | | | |
| 57 | | | | | | 77 | 79 | 80 | 82 | 85 | 88 | | | |
| 58 | | | | | | | 83 | 85 | 88 | 89 | 94 | 96 | | |
| 59 | | | | | | | | 89 | 94 | 94 | 99 | 100 | 102 | |
| 60 | | | | | | | | 93 | 99 | 99 | 103 | 105 | 107 | |
| 61 | | | | | | | | | 102 | 103 | 106 | 109 | 110 | 112 |
| 62 | | | | | | | | | 107 | 107 | 110 | 112 | 113 | 115 |
| 63 | | | | | | | | | | 110 | 114 | 115 | 116 | 118 |
| 64 | | | | | | | | | | | 118 | 120 | 121 | 123 |
| 65 | | | | | | | | | | | | 124 | 126 | 128 |
| 66 | | | | | | | | | | | | 127 | 129 | 130 |

Girls' Height
and Weight

* NOTE.—The age is taken at the nearest birthday. Only scales with bar and weights should be used. Spring scales with dial face are not very durable and are likely to get out of order soon. Measurements for height should be taken with the child standing with feet close together and close against the measuring rod, or a measuring tape may be tacked against a wall and a book placed on the child's head, edgewise, to mark his height.



Modern cribs for children are provided with sides sufficiently open to insure ventilation and high enough to insure baby's safety against falls. In this case the side of crib may be moved up and down as desired.

breezes blowing full force into the room and feel much better for it. The more the child is below normal the more he needs the air-baths, though of course the shorter the baths may need to be. From five to thirty minutes should be devoted daily to air-bathing the children. In addition to daily air-baths the child should have fresh air every minute of the day.

**Sun-Baths
with
Air-Baths**

Sun-baths in association with air-baths are more valuable than they could be if there were no air-baths at the same time; and air-baths always are more beneficial if sun-baths can be taken at the same time. Sun-baths will change the skin of a child from a milk-white, anemic, more or less lifeless skin to a pink and tan skin performing all its functions as completely as possible, with the texture of velvet. Care must be taken to avoid sun-burning, but it will be beneficial to give any amount short of this to the nude body or through light-colored and light-weight clothing daily. The present-day sun-suits are excellent for wear while children are romping and playing in the sunlight. A beach suit may be used when possible to be near and in the water.

Water-Baths. Water-baths have two important uses: cleanliness and invigoration of the body. Children should be kept clean, for the skin is one of the four great eliminative organs, the others being the bowels, the kidneys and the lungs. It is necessary that the pores of the skin be kept free from clogging wastes from the inside and from dust and dirt from the outside. A daily hot soap bath is not advisable. In fact, a child rarely should have a hot bath. Warm baths sufficient for cleanliness are better in every way. Soap should be used only to the extent necessary for cleanliness.

Always after a warm or a hot bath there should be a terminating cool bath. Wet-hand friction is good to begin with. Then a cool wet cloth or a towel may be substituted, or a large sponge full of cool water may be used as a shower. Cool water may be poured from a vessel, but when the child is older than three or four, a shower or spray by portable hand-spray is best of all. Adding cold water quickly to the bath is not advisable, because it necessitates the use of water containing the dirt washed from the body.

The invigorating effect of water-baths comes from cool baths, as explained earlier. No child should be more than a few months old, at most, before experiencing the daily influence and pleasure of a cool bath, the temperature of which may gradually reduce from day to day until fairly cold water is used with pleasure.

Friction-Baths are thought of by most people as rarely as are air-baths, yet they are unsurpassed for maintaining or developing good skin health and functioning. The hands of the mother should be used at first, later a coarse towel, then a coarse bath-mitten, and eventually a flesh-brush for the friction-bath. The child should be taught to give itself these friction-baths as soon as possible. The wet-hand friction-bath is best for young children and those whose vitality is not high, for the warmth and magnetism of the mother's hand aids in bringing full reaction immediately, yet the tonic effect of the bath is secured. Friction may be given also with towel, mitt or brush wet with cold water. A friction-bath in some form should be given daily, the best time being during the air-bath or immediately after the water-bath.

Clothing. From earliest infancy to the age of several years

most children are overburdened with clothing. When stifled with too much clothing the skin becomes weakened and poorly performs its functions of elimination and temperature regulating. A child should not be allowed to become chilled by being underclothed. But far more mothers err on the side of overclothing than underclothing their children. No more clothing than is absolutely necessary to maintain body and skin warmth should be put on a child of any age. Coddling by putting on more than this is one of the most prominent causes of colds and coughs, bronchitis, pneumonia, and other abnormal conditions.

When in the house only summer-weight clothing should be worn, with the lightest-weight undergarments. Only when going out of doors when the air is cold should considerable clothing be put on, even then only what is really necessary. Children should be dressed according to the season, not according to the calendar or to old-fashioned beliefs. The neck and throat do not require mufflers and heavy covering of other sorts, though in cold weather light-weight covering may be allowable. Remember that the more coddling there is the more coddling will be necessary, for the more susceptible the child will be to adverse or even normally healthful conditions of weather.

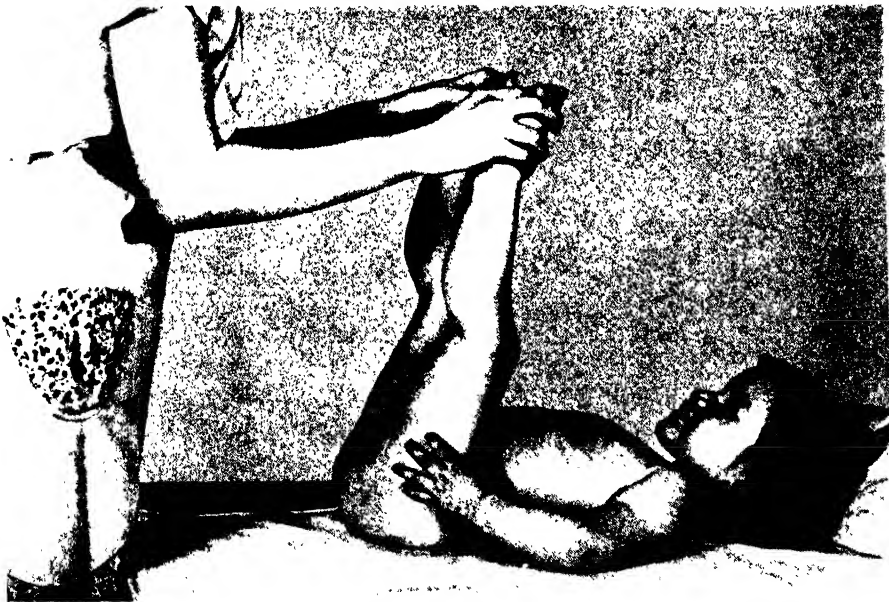
Shoes. As long as possible a child's foot should be free from the restricting influence of leather shoes. Stockings and knitted booties, or perhaps sandals, may be allowed when the child begins to creep over the floor, but not until walking begins should shoes be put on the little feet. If shoes or sandals are worn the inner edge of the sole should be straight and the toe broad, with ample room for the foot to spread. Be sure that the length is such that there will be not the least cramping or crowding of the toes.

Unfortunately, really proper shoes are not made for children after the age of three or four years. Why the foot of a child is supposed to change at about this time no sensible person can understand; but judging by the comparative narrowing of the toes and the curving of the inner margin of the sole they evidently are supposed to do so. The heel also is made higher for children at these ages and older—without any justifiable reason.

As shoes have to be purchased as made, get the nearest approach to a barefoot sandal possible, in shape of sole if not in upper design, just as long as you can for your children, and select shoes with low heels and of the softest and most flexible leather obtainable. Let the children go barefoot whenever the weather and surroundings permit, even in cities. There is no likelihood whatever that this will make the foot abnormally large. Always be sure that the stockings are large enough; also have woolen socks for cold weather and light-weight cotton for summer. Remember that the feet keep warmer in sandals or low shoes that do not bind than in high and heavy shoes that restrict foot movements.

Posture. Most parents ignore the posture of their children, except for an occasional admonition, in some instances, to "straighten up." Usually normal activities of childhood will bring about normal development of chest and lungs, of the entire musculature of the body, and of the spine, and all functions will be performed approximately as they should be, provided the child is fed properly and looked after in other respects so that a high degree of health is maintained. With

Posture in
Children



Beginning with the child's legs at full length they may be brought to vertical position by grasping the feet as shown here; then returned to full length.

The movement may be continued as long as enjoyable and comfortable.

sufficient vitality and "aliveness" children will develop a good posture simply because they can't help it.

The chest and lungs should not require more special attention than should any other organ or structure. But the chest is so intimately connected with posture it is important that parents see that the child is developing properly in this part of his body. Children should be encouraged to romp and play, to yell and to sing, to hang on ropes, swings, trapeze and other arrangements so the ribs will remain flexible and the chest develop in thickness and breadth, to provide ample room for lungs and heart.

Parents should insist upon school seats and desks being properly adjusted to each child so there will be no cramping of chest or abdomen during the many hours children spend in school each week. The nude little body should be examined carefully at least every six months to determine the condition of the spine, shoulders and hips, in order that any abnormal chest and spinal and abdominal conditions may be detected early. Curvature of the spine, prominent abdomen, unequal hips or shoulders, drooping shoulders and sunken chest all may be corrected if detected early and proper attention given at once to corrective measures.

**Elimination
in Childhood**

Elimination. In addition to skin and lungs two extremely important eliminative organs are the bowels and the bladder. Children must be taught as early as possible that when there is the slightest call to evacuate either one this call must be answered. Chronic constipation, bladder and kidney troubles, as well as general disorders, may easily arise from neglect of these two functions. Parents must see that suitable laxative foods are taken by the children to maintain frequent and easy bowel evacuations, and also that teachers permit the children to go to the toilet when Nature calls. But the children also must be taught not to abuse this privilege, for many teachers often restrict all the pupils in this privilege when they find it abused by any one of them.

Normally there should be one evacuation of the bowel waste for each meal taken. Children vary considerably in regard to the frequency of bladder evacuation. This also varies greatly with the nature of the diet, the amount of fluid and water taken and the season of the year, being much less

frequent and less copious in summer than in winter, owing to the greater activity of the skin. Children must be trained to drink considerable water and their diet should have an abundance of fruits, salads and milk. If prudishness and false modesty are not taught them in their own homes by their parents, "modesty" or bashfulness can be sufficiently prevented from developing so that children will not be afraid to excuse themselves in response to these natural calls. No greater injustice ever is done children than to teach them that the body and its requirements are immodest or indecent.

Sleep. Sleep is absolutely necessary for health and growth. It is during sleep that used-up tissues are replaced by new tissues. The growth of the child during the first few months is rapid, the weight doubling within a period of five months. Because of these rapid tissue changes sleep in abundance is all-important. During the first few weeks of life an infant sleeps 20 to 22 hours in each 24. At about two months it generally sleeps approximately 15 to 18 hours a day. During the second year a child should sleep about ten hours during the night and from two to four hours in the afternoon. After-

Sleep in
Childhood



A simple exercise for baby consists of pushing the knees upward and pulling the legs out to full length in turn, as long as the child continues this movement with interest and without growing tired.

noon sleep should be continued until the child is four or five years old. This extra sleep is necessary, for the sleep at night is not sufficient for the baby's proper growth and vitality. Ten hours of sleep at night are needed for children up to at least ten years of age. During all sleep the windows should be well open, using sufficient covering to insure warmth. Regularity of sleeping hours also is of great importance to a child.

Never rock a child to sleep. Place it in its bed and leave it there and it will acquire the habit of going quietly to sleep. If a baby is restless in its sleep a change of position may be all that is needed to insure quiet and comfort. Should it be suffering from gas on its stomach, it may be raised to a sitting posture and patted gently on the back until the gas escapes, then laid down again. Perhaps a drink of water will restore quiet and comfort.

After at least the first month every healthy child should sleep through the entire night without having to be fed. Put him in his own cot or crib while he is still awake. If he cries in the night see that he is dry, clean and comfortable, change his position, give him a little cool, pure water, and put him back again. Do not rock him, pet him, hold him in your arms, nor talk to him.

Teach the child to sleep alone, upon a comparatively hard mattress, and without a pillow. Have as little covering upon the bed as is consistent with proper warmth. Whenever possible children should sleep in the nude. Except for very young ones nightgowns and pajamas should not be necessary. The more freedom the skin has the better protector to health it will become. When possible let the child sleep out of doors from the very beginning. This is a definite health advantage. Even in large cities the night air is purer than the day air. Comfort is the chief requisite for normal, refreshing sleep in abundance.

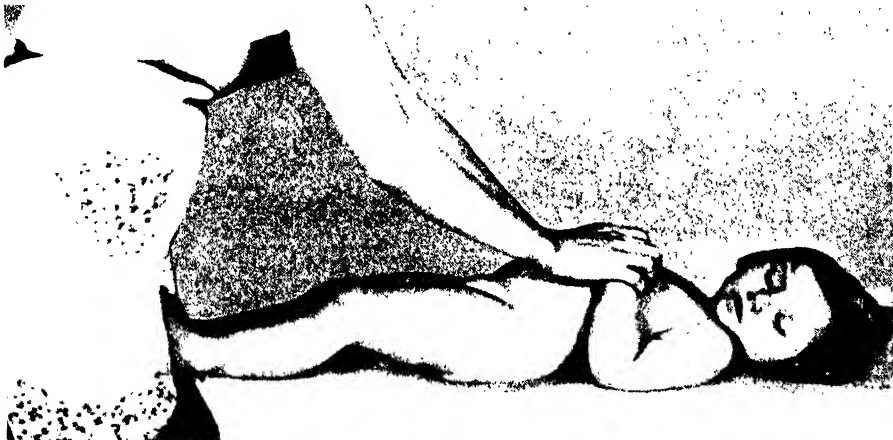
**Teeth in
Childhood**

The Teeth. Through the health and diet of the mother, good teeth in children are made before the child is born. But the diet of the child adds to or detracts from the condition of the teeth. Oral hygiene today is an important part of child hygiene, as it is of adult hygiene. The condition and the time of the disappearance of the first teeth have much to do with the condition of the permanent teeth.

If the first are lost prematurely the permanent teeth will be likely to come in irregularly and become progressively more irregular, if not corrected by special and expensive dental work. Such teeth cause poor mastication of food, which interferes with the digestion and assimilation and general health, hence with development. They cause the jaw to develop abnormally and prevent perfect cleanliness, hence the second teeth are lost prematurely, besides causing toothache, neuralgia, headache, and other nervous and physical disorders. Mouth breathing may be caused in the same way, through interference with the normal relations between the mouth and the nose. Pyorrhea develops much more frequently and severely when the teeth are irregular than when normal.

From the above, mouth and tooth cleanliness are seen to be highly important. The child's mouth and teeth should be cleaned daily, especially at night, because it is at this time that decay or conditions causing decay are most active. But the teeth should be cleansed after breakfast, if not before, also. If the diet contains enough fruits and vegetables, perhaps nuts, that require mastication and that give the teeth good work and the gums good massage, there is less need for the brush and dental floss to be used, but at least the brush should not be neglected at night. If the teeth are abnormal in any way the child should be taken regularly to the dentist for corrective work.

Diet for
the Teeth



This photograph illustrates an exercise for the arms of very young children. Reclining in position illustrated, the arms are brought to full length and returned to the chest rapidly, but not to such an extent as to tire the child.

Ears and Their Care. A great many mothers endanger the ears of their children by cleaning the external ear canal with cloth wrapped about the head of a hair pin or an ordinary pin, or some other equally dangerous "tool." An old adage advises us not to put "anything smaller than the elbow" into the ear. Of course the ear canal must be cleaned at times, and the elbow is of no value for this purpose. For safety use a small piece of gauze or other cloth rolled into a cone. This cannot damage the ear-drum. As few women know the depth of the ear canal, they may rupture or damage the ear-drum by using some small hard object for cleaning the canal, even though the object be protected by a cloth.

Eyes and
Ears in
Childhood

If wax accumulates in the ear canal, a small bulb syringe may be used to inject gently a little warm water into the canal, with the child's head held over a basin or the sink, repeating the injection a few times, as required, to loosen the wax. Further injections may bring it out, or it may be extracted readily with the fingers or with a small pair of tweezers, care being used to reach in no farther than the end of the tweezers can be seen. The external or prominent part of the ear may be cleansed safely with ordinary wash-cloth.

The Eyes. Children may be born with weak eyes, but not as a rule. Too strong light early in life, wrong lighting and placement of the blackboard in school, poor general health, poor posture and other preventable conditions are far more likely to be the cause of eye disorders. These conditions, of course, should be prevented; so if the eyes become weak or if there is evidence of eye-strain the general health and the eyes themselves must receive careful attention. The eyes should receive natural treatment rather than be fitted with glasses at once. The latter often, perhaps usually, will not be necessary.

Exercise. To develop the child both muscularly and mentally exercise is an important factor, for the brain is developed through learning to use the muscles. Voluntary exercise is natural for the developing baby and provided the clothing is loose enough to give freedom of motion, a baby will soon begin to exercise itself without any attention of its mother. The little play exercises which the parent gives it will serve to strengthen the little body also. But the practice of throwing the baby up in the air and catching it and other exciting movements should

be avoided, as they are detrimental to the nervous system.

Unhampered kicking and tossing about will give the baby most of the exercise he needs, at least in the beginning, particularly if he is accustomed to lying face down. In this position he will soon learn to raise his head and to push up with his arms. Then it will not be long before he will begin to roll over and strive to creep. A play exercise he will enjoy is to lift him by the opposite arm and leg and hold him so a moment. By the age of six or eight months he probably will be able to raise himself from lying down to sitting up, if his feet are held down. Rolling the baby on the bed is good exercise and great fun for the little one.

Exercise in
Infancy

Among the other first movements a baby can be taught should be one suggesting freedom of action, just as the mother bird teaches her young to fly. The baby may be grasped by the hands or wrists while lying on the back, raised to a sitting position, then gently released and allowed to drop back upon the bed. If he is lifted only a little way at first and if the movement is repeated a few times he will soon begin to enjoy it and laugh and kick and look for more instead of being frightened. If the bed has a good spring he may rebound a bit at each drop. This is a healthful exercise and will give the baby great pleasure at the same time. But do not continue it or any other exercise too long, for a baby should not become too tired. Start with a few moments only and he will soon learn to anticipate the exercise period and also to exercise himself in many little ways. The exercise will warm him up as a rule. Should it fail to do so give him a good brisk rub for a moment or so before he is dressed, or given the wet-hand friction bath, or tucked in bed.

Another excellent exercise is to let the baby reach for some toy far to one side, straight up, beyond the head, and then to the other side. Also swing the toy across his body and down toward his feet and let him reach for it in all directions. This is a good exercise for most of his muscles. Swinging the toy from side to side, causing him to move his head and shoulders while sitting up, is also excellent. Still another is to get him to kick up at your hand with one or both feet while lying on his back. This strengthens the abdominal muscles. A variation of this is to place the palm of the hand against the soles of

1792 EXERCISE FOR THE CHILD

baby's feet when the legs are raised up, and press downward trying to get him to resist the pressure.

Sun-Baths with Exercise

As a child grows older his exercise can be combined with an air- and sun-bath by giving him his exercise while nude and with the window open if the weather is suitable. Let the sun play directly upon his little body. Combined air- and sun-baths, together with a romp, will have a great tendency to overcome the nervousness and irritability from which so many children who stay indoors a great deal are likely to suffer. If thus encouraged a child will exercise every muscle of his body, enjoying both a jolly time and physical benefit, for a free supply of light and air will relieve nervous tension when nothing else will. A further effect of exercise in the open air and sunshine is to stimulate the glands of the skin, to regulate the circulation, and to give general tone and strength to the whole body. It also stimulates the terminals of those nerves which have to do with regulating the production of heat in the body.

Babies seem to get more pleasure from simple toys than from elaborate ones. The baby and the young child will get more fun out of an old shoe than a beautiful rattle, or from an old worsted or rubber dolly than from a beautiful French creation, or from a box of blocks than from a mechanical wagon.



In moderation feats of strength and agility may be engaged in to advantage by even very young children. The game of "Pull Stick," in which opponents try to pull each other to a standing position, is adapted to children of six years or over.

As a child grows older, say from the second to the fifth year, he will take readily to simple games, especially those which embrace running about.

This is a good age in which to teach him to do certain stunts in combination with his parents, such as holding his body straight and rigid while the father (or mother) holds him high overhead, both hands holding the ankles or one hand grasping the ankles and the other the back of the neck.

Another stunt is for the child to lock his legs around the father's waist while held in the latter's arms and facing him. He will learn from this position to lower his upper body backward, and then rise from that position to the first position, at first being assisted by the arms. This is an ideal abdominal exercise.

At this age also a child will hold a stick while his parent pushes it high overhead, or he will learn to jump from five or six stair steps into his parent's arms, or to turn somersaults on the ground.

Varied action should be the chief principle of exercises for children, rather than endurance or tests of strength. Hence games requiring suppleness and quickness are especially to be recommended. But these should not be carried to the point of fatigue. As a rule a child is active in a variety of directions nearly all the time while awake and develops a tirelessness peculiar to childhood and youth; but he should not be subjected to exercises which require too much repetition or prolongation of movement or anything to cause strain.

Play
Exercises

A child three years old or even younger in some cases may be exercised by lifting him from the floor by placing the hands on his ears and having him hold firmly to the forearms of the parent. The weight should be equally distributed between his neck and arms.

A good exercise for the spine is pulling forward on the child's head with the hand on the back of the head while the child pulls backward. This will develop the upper spine, particularly the neck.

Swinging on a horizontal bar or trapeze and doing such stunts as "chinning" and "skinning the cat" are valuable exercises.

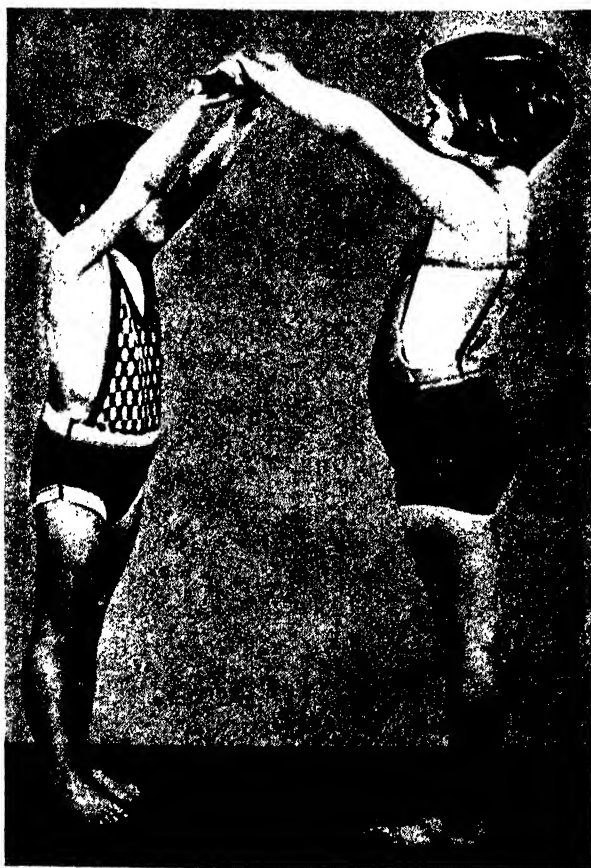
The game of "wheelbarrow" is excellent for both children

participating. In this one child has his hands on the ground while a second child grasps the other's legs, which he holds up wheelbarrow fashion while the first child walks on his hands. Walking with the parents, especially in parks or fields, is excellent exercise and a beautiful recreation. It may be varied by the parent occasionally taking the child up and carrying him on his back, jogging along and shaking him up a bit.

Games for
Children

A few other valuable exercises for children may be briefly described: (1) An older child of fair strength may carry a lighter child on his shoulders. (2) Children may take turns in carrying one another on their backs pickaback fashion.

(3) Riding pony: One child on all fours, the other riding on his back. Care is necessary in these three exercises to see that no child carries too heavy a companion. (4) Two children may grasp each other by the back of the neck, both pulling and both resisting the pull. (5) Two children facing each other grasp a round stick and see which can pull the other over a line; or, with the stick elevated, see which can make the stick turn in the hands of the other as the stick is lowered between them. These are



Such simple exercises as here shown, involving a test of strength by the attempt of the young competitors to pull opponent's hands down from overhead, may be performed by children even under the ages of five or six.

meant only as illustrations. Others may be known or devised by the parents.

Development and growth are encouraged, even made possible, by activity. But it must not be forgotten that they would be impossible without the proper amount of rest, recreation and sleep. Care must be taken to provide these in ample amounts.

HABITS.—Many mothers are unduly concerned over some innocent habits developed by their babies, while others ignore all habits or, perhaps, look upon them only as “cute.” Much worry is occasioned by the habit of *thumb-sucking*. Babies vary much in their tendency toward this habit. Some have a thumb in the mouth and have started the habit before they are a day old; others develop it only after a few weeks, perhaps a few months; and some never have the slightest inclination to develop it.

Baby's
Habits

It is claimed that by this habit the mouth and the palate may be deformed; the jaws and dental arches made to grow abnormal in shape; the entire body caused to develop abnormally; and even the mind to suffer. It is further claimed that the saliva is not only wasted, but that the free flow caused by thumb-sucking changes the nature of the stomach secretions, thus disturbing digestion. These effects are supposed to result not only from thumb-sucking, but also from sucking and chewing on nipples and pacifiers. Such statements are not justified by facts; yet the habit is objectionable and should be broken as soon as possible, since the longer it continues the more difficult the breaking may become. However this should be done without violence, otherwise more harm may result than from the habit itself.

Parents sometimes resort to preventives, such as a special appliance placed over the thumbs, a mitten of rough fabric over the entire hands, especially at night, lightly slapping the hands, smearing the thumbs with ill-tasting or disgusting substances. Sometimes these cure the habit, but they quite as often fail. Some children may be made ill by such things.

Thumb-
Sucking

Never tie the arms so snugly about the body that the child cannot loosen them. This will be extremely detrimental to his nervous stability and at the same time will interfere with his development, for he needs all his members to be free that he may exercise without interference.

The thumb-sucking baby or child may need only better nutrition. Be careful to provide him with the most nearly natural food possible, and in abundance but without excess. The nursing baby may be constantly irritated by milk made abnormal by the mother's diet or general health. These may need careful supervision. Often the child does not get enough water to drink. See that it gets water frequently and in ample amounts.

Pacifiers

Pacifiers are as objectionable as thumb-sucking. These innocent-appearing little contrivances are forever getting in dust and dirt and soiled places, so may carry to the child's mouth nauseating substances or the germs of some infectious, intestinal, or other disease.

DISEASES AND DISORDERS OF CHILDREN.—Owing to inherent powers of resistance a properly cared-for normal infant will escape most of the ordinary diseases to which a less vigorous one may be susceptible. Such a fortunate child is immune to many diseases, even some of the more serious communicable ones.

Immunity is something that cannot be measured nor determined beforehand, except immunity to diphtheria by the Schick test and to scarlet fever by the Dick test—two modern super-scientific methods that a child should not be subjected to because by the very test itself foreign and toxic material is suddenly injected into the body.

Resistance in Infancy

A child who seems to be in normal health will sometimes develop one of the communicable diseases while another apparently considerably below normal in health occasionally escapes, even when exposed to the same extent. It is safe to say that ordinarily those who appear to be healthy yet develop diseases have a considerable degree of toxemia at the time, while those who do not appear so strong yet who escape the diseases have a less pronounced degree. This is the underlying cause of most diseases. Other elements or factors are also responsible for the immunity or the susceptibility. Also there are times when one is immune and other times when susceptible, under apparently identical or similar conditions.

Barring some digestive disorder which results from dietetic indiscretions, or the effects of an injury, in case a child shows signs of illness the parents should understand that the condi-

tion is one in which Nature is trying to eliminate some poisons or toxins from the little body. Regardless of exciting cause, the child could not be ill if the bloodstream, lymph-stream and body cells were perfectly free from toxins, or at most the illness could be no more than a slight indisposition of short duration.

When illness does develop, the child should be taken in hand at once. The very onset of the disease indicates an underlying abnormal condition, the extent of which often cannot be estimated; hence feeding should cease for a time, to prevent what might develop into a serious illness. Nothing should be allowed but boiled warm or cool water, giving this in a bottle to an infant or a young child.

If there is fever the water may be given cool, but never very cold. If the child is not robust the water may contain a small amount of unsweetened citrous fruit juice, the amount depending upon the age and general condition of the child. An enema of warm water (about 98 degrees) should be given at the very onset of an illness, even though there is no indication of constipation. Warm packs applied to the abdomen and means of keeping the feet warm are important, especially the latter. Fresh air is a necessity at all times, particularly during illness.

In regard to keeping a child in bed when ill or indisposed, his inclination should govern this. It is wrong to make it an



Leap-frog is a sport so natural in its action and movement as to be almost instinctive on the part of the child.

Diseases of
Childhood

unalterable rule to confine a child to his bed or crib during any and all illnesses and indispositions, regardless of whether or not the child desires to remain in bed. Usually let the child follow his instincts. As a rule he will want to be in bed if there is fever, so it is advisable that he should be there at such time. Even without a fever he may feel like lying around, though perhaps not in bed. Often he will desire to play quietly with toys, perhaps even out of doors. As a rule, he should be allowed to do so. His instincts, at least in this regard, usually may be trusted. Remember that a child will recover normal or his usual health within a short time under proper treatment.

The most important diseases of childhood are more or less familiar to everyone—chicken-pox, colic, constipation, convulsions, cough, croup, diarrhea, diphtheria, measles, mumps, rickets, scarlet fever, thrush, whooping-cough and some forms of tuberculosis. See Volumes VII and VIII.

PREMATURE INFANTS.—What has been said in the preceding pages of the care of the new-born baby and growing child referred to the normal full-term and healthy infant. It is important that something be said of the special care needed by those little ones who are sent into the world before their proper time. If born before the normal full term of 280 days a baby is premature. Infants born at the expiration of 28 weeks (196 days) or later have a fair chance to live if properly cared for. Those born around 24 weeks, though having a possible chance, usually die within a short time after birth, within a few hours as a rule. These latter cases need incubator care, so it is much better to send them at once to a hospital or institution where such care can be given them than to try to keep the spark of life in them in their homes. However, as it is not always possible to send them away it is advisable to give here something of the best immediate care for these little ones.

A premature infant should be wrapped immediately in soft, warm woolen blankets or in rolls of absorbent cotton and placed in some proper receptacle, such as a basket. It should not be exposed to the cold air for an instant. In case it is impossible to have the infant placed in a regular incubator, a home-made makeshift incubator may be improvised from a basket or a wooden box. A number of bottles (flat flasks if possible) filled with hot water should be put in the bottom of the basket or

box and a folded woollen blanket placed upon them. The infant is laid upon this and warmly covered, the covers being tucked in on the sides.

A premature baby must not be bathed; its vitality is too low, so it will be much weakened by a bath. Its body should be oiled gently with warm olive oil as soon after birth as possible, exposing only one part at a time. Then it should be wrapped in absorbent cotton with separate small pads of the same placed at the groins and buttocks for convenient removal when wet or soiled. This care should be continued for several weeks, no baths being given during this time, the olive oil being applied every two days. In the incubator the temperature should be kept at from 85 to 90 degrees, or even a little higher if the infant does not weigh more than two pounds or if it has been born before seven months.

Premature
Infants

In feeding a premature infant the milk (which should be breast milk if at all possible) should be given at intervals of an hour and a half at first. These infants may not be able to suckle, in which case it is advisable to draw the milk from the breast with a breast-pump or by milking and to feed with a medicine dropper, half an ounce or so at a time. It also is advisable in some cases to dilute the milk slightly with previously boiled water. If cow's milk must be employed it must be diluted with even more water than is suggested in the feeding table, which applies only to full-term infants. A good formula usually would be two or three ounces of top milk diluted with fifteen ounces of previously boiled water, and one ounce each of milk sugar and lime-water.

Feeding the
Premature
Infant

These little ones should be handled as little as possible, kept quiet, warm, and away from strong light, as such conditions are normal before birth at full term.

"SPOILED BABIES."—Do not spoil your baby by teaching it to cry for what it wants. A great many mothers make this unfortunate mistake and later find that they have established a troublesome habit that is very hard to break. "Teaching the baby to cry for what it wants" means to give it food, to pick it up and carry it, to give it whatever it asks for or indicates that it wants, whenever it cries; or to pick up and give back a toy or whatever it has had in its hands and thrown down in a temper, perhaps many times. This is not kindness; rather, it is

Training
Baby Habits



Very light dumbbells may be of value in implanting enjoyment of exercise in the mind of the growing child.

the grossest unkindness, for the child will be thus trained in a bad habit, one which will have to be broken later at a cost of many tears and hours of suffering. While the baby's real needs cannot be too carefully attended to, its whims should be as resolutely disregarded.

If taught that it will not receive food except at the proper, regular intervals and that it *will not get fed by crying for food*, life will be much happier for it and its mother. If it cries at feeding time see that it stops crying *before* it is fed, and it will soon learn and surely remember its lesson. Countless mothers make unnecessary work, fatigue and nerve strain for themselves by training their babies early

in life to cry to be held and carried about or rocked. If it were not for the ignorance which permits mothers so to train their babies one might say they have earned their extra hours of work and baby care. Mothers may spoil their babies in many ways. Constantly doing something with the baby is one way. Avoid all spoiling that you possibly can—and all can be avoided.

TEETHING.—As a rule, the more healthy and vigorous a child the less trouble he will have in teething. But the process of teething frequently gives rise to considerable disturbance of the nervous system as a result of the irritation of the gums. This is likely to affect the appetite and the functions of the body generally. If the appetite should fail, however, do not attempt to feed the child against his wish. A fast of a day or two with plenty of pure, cool water usually will be beneficial.

Baby's Gums
and Teeth

The gums are naturally pink; but when teething they often become swollen, red and angry-looking. Wrong feeding almost invariably makes this condition possible; continued wrong feeding prolongs it. For such a case lancing is sometimes advised; but except in unusual cases it is unnecessary. It should be done only when the tooth can be seen just beneath the gum and the gum is very much swollen and inflamed, or white and seemingly stretched yet resistant. Lancing while the tooth is still some distance from the surface is useless because the gum will heal before the tooth makes its appearance and the resulting more or less tough scar-tissue will be all the harder for the tooth to come through when finally ready. When lancing is done the tooth should come through the opening with gentle pressure upon the gum.

Clearing the bowels with an enema, giving no food other than water and diluted fruit juices and, perhaps, a piece of hard toast or zwieback (except when there is inflammation), and cool wet-hand rubs to allay the nervousness, usually will correct the disturbance of teething; but if prolonged the baby will need to be fed, of course, so care should be taken to feed it properly and to secure adequate elimination.

SEX INSTINCT.—It is hard to say just when the sex instinct develops in children and when it first begins to show itself, for certain apparently sexual impulses and acts are seen sometimes in very young children. These might lead one to believe that they represent the awakening of the sex instinct. They may be explained otherwise. For instance, as stated earlier in this section, sometimes very young children will be found handling their genitals or rubbing them between the thighs or upon the bed or the floor and evidently deriving some pleasurable sensations therefrom. This seemingly may be a manifestation of the sexual instinct. But it may just as

Sex Conduct
in Childhood

1802 SEX INSTINCT IN THE CHILD

well be merely for the sake of an unfamiliar sensation such as might be derived from some other action or state of mind not connected in any way with the sexual apparatus or impulse; for certainly the young child knows nothing of sex and does not become sexually aroused.

Awakening
of Sex

Later on, however, even a considerable length of time before puberty, certain indefinite feelings are likely to develop in both boys and girls. These certainly mean the awakening of the sexual instinct, though it is not understood as such by the children. As children of six, eight or ten years of age they begin to notice the sexual organs as something more than just organs of elimination. Curiosity takes possession of them; they wonder why girls and boys are constructed differently. At this time they frequently begin the habit of masturbation, or of touching or manipulating the sexual organs for the sensations thus derived. They are now old enough to note that these sensations are more noticeable and decidedly different

from those derived from other acts, so they continue the practice and develop the habit.

Whereas when infants they may have touched or handled the genitals openly with no appreciation that they should not do so, now they are older they begin instinctively to feel, even without having been told, that it is something they should not be caught doing. Children of nine or ten have been known to attempt



One of the chief benefits of well-chosen exercises in childhood is to develop flexibility.



PHOTOGRAPH EWING GALLOWAY

PLATE 56. A child marriage in Borneo, performed by a local Sultan.

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sexual intercourse, not understanding what it means and most likely never having seen the act performed. There is no instinct to mate and yet there is the attempt to perform the mating act.

As children become older the instinct sometimes becomes marked and it increases until puberty, when it is fully developed. In many children, however, the instinct is not awakened until the close approach of puberty. Usually for some little time before puberty the boy will have erections but will not be virile, the testicular glands beginning to function only at puberty. At this time the glands secrete the sperm cells which are capable of impregnating the female ovum, and in girls the ovaries begin to discharge the ripened ova, the menstrual function appears, and they become capable of impregnation. In other words, puberty in the female denotes the development of the ovarian function, the appearance of menstruation, and the awakening of real sexual desires. In the male it means the beginning of the gonadal functioning, the secretion of sperm cells and the desire for sexual union. The period of puberty is the beginning of the period of adolescence. This subject has been more fully discussed in previous pages of this volume. Puberty usually appears in girls at twelve to fourteen or more years and in boys at from thirteen to sixteen. For the characteristic changes in both boys and girls at the period of adolescence the reader is referred to Section 7 of this volume.

Children's
Sex Questions

The mental awakening in children to matters relating to sex occurs quite early in life. Anywhere from six years of age on the child is likely to note certain things of a sexual nature in everyday life. Upon these he will desire information, so he begins to ask questions of his parents or elders. At this period the parents should seriously consider the necessity for starting the child in the right direction by undertaking a series of talks with him or her to explain in a frank, clean and comprehensive manner just what sex means, how vegetable and animal life is produced, and all the various matters which the child must know later.

The child will not be put off for long with explanations only of the origin of vegetable life. Besides, the analogy is so slight that the facts the child desires and needs to know



Wholesome
Sex Teaching

Exercise in early years should not make demands upon the endurance of the child but should enable it to enjoy exercise and the use of apparatus.

cannot be explained sufficiently thereby. But by proper explanations sex can be made to the child a beautiful and wonderful thing, instead of the vulgar and disgusting thing which playmates may otherwise represent it to be. Instead of considering sex as something never to be mentioned before others, he or she will learn to look upon it as it really is—as pure, as sweet, and as clean as any other of the wonderful things he has learned about Nature and Nature's ways.

The very questions children ask show in what direction their minds are running, so they should be enlightened in the proper way. The commonest question is "Where do babies come from?" The answer, "Babies come from Heaven," or "The stork brings them," or "The doctor brings them in his black bag," will pacify for only a brief time. For when children compare notes and find that the parents of one have told one story and those of another a different one they become suspicious and before long it will be too late for the parents to obtain their confidence and belief.

Questions about the formation of the genital organs and differences between the child

and its baby brother or sister also are common, as well as questions (by children of rural districts) about farm animals, cows, bulls, dogs and chickens. Children often in some way obtain information early about the actual sexual act, though it usually is incorrect and garbled, especially of marital relationship and the resultant arrival of the baby. All these matters should be explained early and correctly so the point of view of the developing minds will not be abnormal or, if already so, will be changed in the right direction. This proper point of view will remain with them throughout life, and they will view the subject of sex at all times as a beautiful instead of an indecent subject.

MASTURBATION.—Much that is untrue and misleading has been written and spoken regarding masturbation. No one can claim that it is of benefit to the body. But to ascribe to it such tragic physical and mental results as has been done in the past is a serious blunder, if for no other reason than that this view of the habit or practice (it often is a practice without being a habit) often causes such worry on the part of those who have indulged as really to produce serious disorders both of the body and of the mind. It is claimed now by physiologists and sexologists that the practice is but a more or less natural phase of the transitional stage from early youth to manhood or even from boyhood to youth.

Self-Abuse

A college professor once made the statement that if a man claimed he had never masturbated in his life he could be put down as a liar. The practice may not be so universal; but it is nearly so. It is surprisingly common among girls. Yet the world moves on, great minds continue to exist, awe-inspiring products of inventive genius or of genius in other lines continue to appear, and instead of being depopulated the world contains a larger number of inhabitants every year than during the previous year, thus proving that the practice is not ruinous to reproductive functions.

However, children should be taught the facts of sex before they have begun to practice masturbation. But if too late for this, they should have the needed knowledge at the earliest possible time. It does happen occasionally that a youth becomes a slave to the habit, or that as a youth or a young man he lives for little or nothing save sexual gratification. This

may lead him to be victimized by one of the "social diseases," in either case sapping his energies and depriving himself of realization of his greatest pleasures and ambitions and possibilities.

If children are discovered to have a tendency toward masturbation the parents first of all must *not*, by word or act, lead them to believe that it is an unforgivable sin or the last degree of depravity. They must act toward the children as if nothing unusual has occurred. But they also must explain the functions of the sex organs, the beauty of sex in its potentialities, the responsibilities of the child to himself and to the future generations, and the disadvantages of prematurely drawing upon the energies in this manner.

Sex Teaching
for the Child

They must emphasize the power of sex in building a beautiful and powerful and healthy body, in making possible an alert, constructive, imaginative and creative mind, in creating a masterful yet attractive personality. If a child or a youth or a girl is made to look upon sex as such an influence upon every phase of his or her existence, there will be much less likelihood of the practice being continued and becoming a habit than if sex has been pictured to him or her as a secret, degrading and immoral thing.

By proper instruction get the child to see that the practice is unmanly or unwomanly, but never give the impression that it is sinful and debasing in itself. Caution the child to control itself as much as possible; but also give it the equally important caution not to worry about nor further consider such an act once it has been done, except to resolve that it will not be repeated unless the impulse should become overwhelming and spontaneous, never from wilful awakening. Your boy or girl then will soon develop mastery over self, which is one of the first steps toward development of character.

PROBLEMS OF THE UNMARRIED

Section 6

Changing
Ideas of
Marriage

IN considering the sexual problems of the unmarried from the standpoint of the physical factors of health and life the term "unmarried" is here taken to mean unmated.

In the legal sense the term *marriage* may mean many different things. Individuals may be married and temporarily or permanently separated from their mates. In this case they become unmarried, in a physical sense. Their sex problems and sex acts under such circumstances may have a legal significance quite different from the problems and acts of those who are legally unmarried, but the physical problems are essentially identical. In addition there are the people who have mated in defiance of the law and who are living as though legally married. Obviously their physical problems are those of the married, though their defiance of the law may raise a host of psychological and social problems of which those who are legally married know nothing.

Considering the distinction just pointed out, it might be thought that this part of the present volume might be more accurately entitled *Problems of the Unmated*. It is, however, extremely difficult to classify, definitely and satisfactorily, all individuals as either mated or unmated.

According to the accepted standards of an ideally moral life the division is sharp enough. The child of either sex is born, grows and reaches the period of puberty but does not immediately marry. Yet the ideal demands that there should be no functioning of the sexual system until permanent mating occurs. It is required further that physical mating and the formal or legal marriage take place at one and the same time and that the union should continue as long as both parties live, to the exclusion of all other sexual relations. Such a program divides the whole of life's sexual experience into two clean-cut periods of unmated and married. If any third classi-

Dangers of
Sexual Free-
dom

fication should be made it would merely be that of distinguishing the life of the child before puberty from that of youth between puberty and marriage.

But no one is likely to read this book who does not know that such an ideal life experience is rare. The ending of the marriage by death, divorce, or mere separation disturbs the perfect scheme often enough, but that is not the point of disturbance under consideration at present. Rather the fact must be faced that, for a great proportion of individuals, the period of life preceding marriage is one of constant struggle with the temptations and circumstances that lead to various sexual experiences. Certainly this means that no discussion consistent with the facts of life can make an iron-clad classification of the married and the unmarried and take it for granted that there is, in the physical sense, no other possible state. In considering this aspect of life one is brought face to face with the most vexing of all moral and social problems. Here also one finds more emotional concern than is associated with any other moral problem, and therefore more bias and prejudices, more deceit and hypocrisy, more ignorance, error, perversion and denial of facts.

No intelligent people attempt to deny that a considerable amount of premarital sexual intercourse exists; but many go to the other extreme and assume that virtue, in the limited, old-fashioned sense, is a thing of the past and that because this is so sexual mating before the occurrence of legal marriage should be considered the normal thing. This point of view is not only dangerous to society but is not in accordance with the facts.

Mere moral condemnation of premarital sexual mating does not solve the practical problem of how to prevent it. The moral history of the race proves that social and legal penalties against unsanctioned matings have never operated successfully. The difficulties that prevent such moral codes from being completely effective lie not only in the strength of the sexual impulse itself but in the fact that the sexual union is instinctively, as well as by all customs of civilized man, the most private and secluded of all acts. In no possible human environment, except in jails or asylums, where the sexes are forcibly separated and are constantly under guard,

can sexual acts be restrained or sexual digressions known.

Here another significant fact appears; namely, the application of discipline of a military type to sexual relations tends to deplorable conditions in these relations. On the other hand, the greater the individual responsibility the better and more wholesome are the sexual point of view and the moral status of the sexual life.

Prohibition of sexual expression between the unmarried either by law or social tyranny is even more futile than prohibition of the use of alcohol. Alcohol is at least an artificial and foreign thing. But the sexual nature and capacity of man and woman is natural and a vital part of the physical and mental nature of every normal being. Hence the only possible method of control lies in education.

The use of alcohol and premarital indulgence in sexual life are the two chief evils from which the moral world strives to protect its youth. These two dangers frequently are associated but part of this association is accidental. Each is recognized as a serious departure from the accepted rules of moral conduct, and hence those individuals who violate one are more likely to violate the other. Group influence also tends to bring the two evils together. Lastly, it is an unquestioned fact that alcohol inhibits the centers of moral control in the brain. Hence young people indulging in alcohol are much more prone to indulge in sexual acts. This is particularly true in the case of the girl, because she suffers graver danger from the aggression of the male when her physical and mental strength are lowered by alcohol.

Premarital
Intimacies
and Alcohol

But conditions under which these two forbidden things are associated should not blind one to the great difference between them. The indulgence in alcohol is an unnatural thing. It serves no good purpose in life at any time and the craving for it has to be acquired. The sexual appetite is not only natural but is of the very essence of life itself, since it is the means by which the sexes are brought together for the procreation of offspring. Therefore sexual indulgence is not in itself a sin against nature but becomes so only under certain circumstances.

This statement must not be considered as an effort to belittle the gravity of indulgence in the sexual relation at

wrong times and with the wrong partner. Nothing can be fraught with graver dangers to the physical, mental and moral health. Because of its enormous importance in the scheme of life its abuse is damning and destructive.

This destruction may take the form of infection with loathsome and devastating diseases. Or pregnancy may overtake the female, not only affecting her social standing in life but seriously handicapping an innocent child. Even if this outcome is avoided, there arise other dangerous and destructive influences in both a physical and a moral sense. But if, by the aid of chance, or by caution or preventive measures, the graver consequences of such acts are escaped, there are still elements of danger to moral and mental happiness that usually bring far more pain into life than can possibly be compensated for by the momentary pleasures of indulgence. Unhappily, this truth can often be learned only by bitter experience.

Mating
Without
Marriage

Sexual unions outside of marriage bring no joy with them because of the constant fear of discovery, the reproaches of conscience or of regret and shame based, not upon the act itself, but often upon the choice of the partner in the act.

That the woman ordinarily suffers far more than the man in this respect is common knowledge. This condition had its basis originally in pregnancy. It still has its basis in the fear of pregnancy. But even when knowledge and practice diminish this risk there is still much that the woman must bear. Society still holds hers as the greater sin, and she herself usually regards the sexual relation more seriously than does the man. Therefore, its indulgence with a man to whom she is not married gives her a sense of slavery and of inferiority to him from which she escapes with the greatest difficulty and which may make future happiness impossible.

The force of primitive passion and the clandestine nature of the premarital sexual relation makes it highly probable that the choice of partner in this illicit relation will be less wise and fortunate than the choice made under more reasonable and happier conditions when a permanent mate for marriage is being selected. But even in those cases in which the attraction is of the kind that would normally lead to marriage, premarital relations are likely to result in the destruction of the love that drew the couple together.

Numerous conditions conspire to bring this about. Inconsistent as it may seem, the instinctive desire for privacy and secrecy in the consummation of the sexual union is followed by a desire to proclaim to others the mated status. Normal marriage gives opportunity for this expression. The newly married couple go off on their honeymoon to hide the first stages of their mating from the eyes of those who know them. But soon they are ready to return to their friends, set up a home and assume the social position that marriage gives them.

The man or the woman in love is rightfully proud of his or her mate and wants to proclaim to others the pride of posses-



PHOTOGRAPH EWING GALLOWAY

Progressive civilization recognizes the importance of kindred tastes and companionship in marriage.

sion. Secret union denies this opportunity. The secret, romantic at first, soon becomes a dreadful burden to which is added the fear of discovery. Either by accident, or by the mere urge to confess, the relation is usually soon discovered or guessed and this brings a new burden of worry as to who may "tell" and how far the secret may have spread. Even if those who know of the relation are tolerant of it there is still the fear of being the subject of light or malicious gossip.

Dangers of
Unsanctioned
Unions

It is notorious that two people tied together in unhappy circumstances soon begin to blame each other and to quarrel. The quarrels of the young husband and wife during the first year of adjustment are mild compared with those of a young couple bound by a secret and illegal union. The bonds of matrimony bring all sorts of legal and social forces to hold a couple together while they are weathering these early quarrels. But in the unsanctioned union these same forces work in exactly the opposite direction. As a result, an illegal mating, which might have been happy under the conditions of marriage, quickly goes on the rocks of discord. Young lovers may refuse to believe this but those with experience in such matters know it to be true.

Without the restraint of legal marriage it is far easier for a lovers' quarrel to turn the attention of one or both parties to some new attachment and so to start a chain of promiscuity which becomes easier at each new step. Yet the instinctive sense for monogamy which all women, and to a lesser extent all men possess, rebels at a growing history of successive loves leading to successive sexual matings. It is a situation which, to say nothing of its physical dangers, can rarely have a happy outcome and which is destructive of all the finer things in life.

When young people in such relations are aware that other members of the group are leading similar lives there often develops a system of social affairs politely called "parties," the purpose of which is apparent to all. Such group social life is exceedingly dangerous and may lead to the vulgarizing of love and to promiscuity. It is also dangerous to the innocent individual who may be drawn into it unknowingly, for a non-participating individual or couple stands as a criticism, challenge, and danger to the others and the general opinion of the

group will bring all possible pressure to bear to induce such a person or couple to join in the sexual orgies.

No matter how liberal the point of view may be, this type of social life has no defense. Its most malign power lies in the fact that virtue's chief bulwark against the sexual appetite is the sense of social disapproval. When in a limited group this social disapproval is turned not only into approval but into approximate coercion few young people can stand against it. It is therefore far more dangerous for a young boy or a girl to fall into such a group than to have a secret individual love affair. Either circumstance may lead to sexual experience, but of the two types that brought about by the connivance of the group is far the more degrading and destructive.

Struggles
with Sex
Nature

If it be assumed that all young people are adhering to the straight and narrow way of virtue, no truthful or adequate picture of the problems of the unmarried can be presented. A truthful cross-section of the life of the unmarried members of any community includes wide and varied types and conditions of sexual status and sexual experiences. The girl or the boy who is struggling with a sexual nature that has no opportunity for expression is one problem, because it differs in accordance with difference in sex; the individual who has had a single sexual experience is a different problem; so is the individual who is carrying on a continuous but still occasional and clandestine union, and so is one whose sexual experience includes or has included numerous relations with two or more other individuals.

There is also the difference of age. Society looks with different eyes upon the sexual life of a boy still too young to marry and that of a bachelor of thirty or forty; also it looks differently upon the sexual experiences and problems of a young girl in her teens and upon those of an unmarried woman of mature years. Not only do all these cases differ, but the individual cases differ from one another.

THE "REVOLT OF YOUTH."—The constant reiteration in the discussions during this generation of the phrases "flaming youth," the "revolt of youth" and others of similar import indicates that modern young people are rebelling against the moral codes to which their parents are supposed to have adhered.

**Modern
Moral Laxity**

The broader and more general discussion of the moral laxity of the younger generation usually brings in such practices as liquor drinking, cigarette smoking by girls, late hours, vulgar dancing, profane language and the telling of obscene stories. Yet every one knows that widespread interest in the manners and morals of young people revolves about their sexual attitude and conduct and that the other things are of interest chiefly because they are supposed to have some bearing upon sexual ideas or sexual practices.

In any question of sex it is always difficult to get an unbiased opinion. All people, young and old, have emotional biases on the subject and are prejudiced one way or the other. They may sympathize with the more liberal and rebellious attitude of modern youth and be inclined to excuse departures from the older and stricter standards, or they may feel that the old ways are best and that all who depart from them are going to the dogs.

If a man could live serenely for several generations, perhaps he could then compare, without prejudice or feeling, the life of one generation with that of another and so arrive at the truth. Such a detached observer probably would find that youth has always been in revolt against the more conservative views of the older generation. This is but another way of saying that the instincts and feelings of youth do not harmonize with the established rules of conduct in civilized society.

A study of life in early New England brings out the fact that even the strictest rules and regulations ever set up by society failed to maintain the standards of morality. The records of the Puritan courts of justice prove that these excellent persons were sorely troubled with every type of sexual irregularity known in the world today and that their harsh and rigorous laws were never really effective in enforcing their moral codes. Some writers have contended that such laws only made matters worse by exciting the passions and adding the allurements of danger to sexual sins. This point, however, cannot be proved; for the available facts about the types of society in which the subject was ignored—and sexual irregularities assumed not to exist—indicate that the reaction of human nature is about the same under these as under harsher conditions.

Modern society differs from both these earlier types. Sexual digressions are not made to seem so horrible today by vigorous blue laws and brutal prosecutions of individual offenders. Neither is there as much secrecy, hypocrisy and denial of the truth as existed in the mid-Victorian days. Less effort is made to keep young people "innocent"; older people do not pretend that no such problems exist; and young people are more outspoken about their views and conduct.

Latter Day
Freedom in
Sex Discus-
sion

Perhaps the revolt of youth is, therefore, not so much a revolt against the fundamental moral standards as against secrecy, pretense and hypocrisy in regard to the subject of sex. Many of those who deal with groups of girls today are particularly impressed by the fact that the modern girl differs from the girl of a previous generation not so much in her acts as in her talk. She is both better informed on sexual matters and is freer to speak of them. This gives the impression to conservative elders that youth is rebelling against the moral code when it is really rebelling against the old conspiracy of silence.

The testimony of modern young men compared with the memories of older men bears out the contention that this growth of frankness and discussion of sexual topics between young people of opposite sexes is the distinctive new element in the life of youth today. In an older generation it was the common experience of men that only the girl who had lost her virtue would talk at all frankly or freely about sexual subjects. Young men find that no such rule applies today, but that often quite the contrary is true, the girl who knows most about sex and is frankest in speaking of it being often the one least likely to be indiscreet.

The wide diffusion of sexual knowledge and the discussion of the subject by young people in mixed company gives elderly people who have not kept up with the times the impression that the entire younger generation is indulging in sexual orgies.

The fact that the situation is not as bad as some of these older people think is not cited, however, as proof that the morality of the present generation is improving. In fact, it is difficult to know what has been the change in this respect, for no statistics of past generations are available. Eloquent testimony to the change in attitude which has just been pointed

out is the fact that investigators today can now gather such statistics.

Modern Dif-
fusion of Sex
Knowledge

The modern young man probably differs very little from young men of the past in his knowledge of, and attitude toward, sexual matters. It is the young woman who has changed. The modern girl is capable of defending herself against the advances of men and for this reason she is not as readily seduced as the "innocent" girl of a former generation. It follows that when she does participate in such relations she more often does so of her own free will.

Another change of recent times is that a single departure from virtue is not, at least among young people, considered to be the terrible sin and disgrace that our parents were taught to regard it. The older order of society divided women strictly into two categories: the good and the bad. The latter were supposed to be undeserving of any respect or consideration. But one very important effect of the modern situation is that a young man does not so readily lose his respect for the girl with whom he may have sexual relations as was the case with his predecessors. In the old days a man who married such a girl felt that he was getting "damaged goods," even though he himself had wrought the damage. Today a man may marry his partner in premarital sexual relations with no feeling of shame on either side.

The error into which youth is in danger of falling in this matter is that of permitting the more candid consideration of all such questions to break down the ideals of virtue as a desirable goal. In other moral matters ideals are not abandoned just because many people fail to live up to them. David said that all men are liars, and the facts on which this observation was based have probably not changed. But civilization would be in a bad way if all men concluded that truth was not worth striving for and gave up any effort to tell the truth.

The more radically-minded modern youth will argue that these are not parallel cases, that the sexual impulse is an instinct the satisfying of which is not an evil, but has been made so only by arbitrary rules of church or state. To answer this argument effectively one must go back of any mere moral dogma and consider the nature of man, individually and



PHOTOGRAPH UNDERWOOD & UNDERWOOD

PLATE 57. Guests at a wedding in Palestine awaiting the bride's arrival at the home of the bridegroom. In the Orient, the ceremonial aspects and dignity of marriage rites persist.

socially. Consideration must be given to the natural laws that lie behind the social dictum (which may seem to young people as merely an arbitrary rule of society) that the sexual relation should be reserved for one man with one woman and then only in the state of matrimony.

Those who hold that young people should accept moral laws without examining the reasons for their existence should remember that society no longer lives in small, isolated communities with no knowledge of the morals and customs of other people. The child who is told dogmatically that he must do thus and so, without being told why, is likely to find out a little later that other lands and other peoples have other "do's" and "don'ts," and accordingly he begins to question the validity of those that have been taught to him.

The more dogmatic society is in imposing its rules of conduct the more likely is youth to rebel, and this rebellion may cause much damage before the young people learn from experience just why these stricter standards of conduct are desirable. To encourage freedom and independence of thought it is necessary to direct the attention of youth to fundamental facts and principles which cannot be vitiated merely by untempered refusal to obey established rules of conduct.

The wisdom of the ages seems to teach that there are certain principles of sexual morality so well founded on human needs that the race cannot thrive when these principles are discarded or disregarded. If this be so, it follows that the individual who tramples upon these principles of conduct runs great risks. If there is no immediate and personal punishment for such transgressions there is still the ill-will of a society injured by this unsocial conduct.

As a first principle of sex ethics the majority of the advanced races of mankind, savage and civilized, has insisted upon the monogamous relation of one man and one woman. When children are involved the most important reason for this is that two parents are needed properly to care for them. Children raised by one parent alone are reared under a handicap.

**Need of
Parents for
Children**

It is not easy to see how society can rid itself of a rule of conduct based on the need of children for two parents. Utopian dreamers make plans for raising children in state institu-

1818 MONOGAMY VS. POLYGAMY

tions, but these have never worked successfully. To the institutional child parental love is lacking, even if every physical need be met. Some of the tales of hired attendants in orphan asylums are painful evidence of how defective is any force save that of parental love for the task of rearing children.

Basis of Our
Sex Code

Next to monogamous marriage perhaps the most workable scheme for rearing children is the polygamous marriage. Yet polygamy is a manifestly impossible plan for general application since it requires a great many more women than men. Among wild polygamous animals this situation is actually achieved, as all but the strongest males are killed in fighting for the females. To a limited extent the same thing happens in the human species. Among barbarous tribes the slaughter of males in war was often so great that a large number of women were left without possible husbands. The remaining males of the tribes, therefore, or perhaps the males of the conquering tribe, took the women and became polygamous.

If war and other forms of wholesale murder are justifiable, polygamy is justifiable. The makers of war would do well to consider that fact. In the European countries the excess of women left after the great World War made the advisability of plural marriages at least a debatable question. But the trouble is that once the institution is established it calls for the further murder of men to maintain it, or there follows the monopolization of women by the rich and powerful. Obviously few would try to justify that sort of a society. Nor is there any real happiness for the participants in polygamous relations. Coarsened by war and barbarism, men may tolerate it, but women never do, except under the urge of necessity. Women in polygamous lands are practically slaves, and this condition of the mothers is reflected in the children, serving to retard the development of such races.

Other than this impractical scheme of polygamy, the only conceivable alternative is promiscuity. For men this has always been more readily tolerated than for women, and while there is no justification for it, there is at least an explanation. When children are born from promiscuous relations, the identity of the father is lost. Men thus escape their paternal responsibilities. Any man resents the thought that he may be playing father to a child not his own. If he has grounds for

such suspicion he is worse than a stepfather—worse, in fact, than no father at all. A man quickly comes to hate a woman whom he suspects of foisting another man's child upon him. Love rarely will survive that suspicion. That fact alone makes impossible any scheme of parenthood in which paternity is rendered doubtful by promiscuous women.

An abhorrent, though more generally tolerated scheme of sexual life, is that of the promiscuity of

men with a special class of women who voluntarily give up wifehood and motherhood. Such prostitution has always existed to a greater or less degree in all civilized lands. Efforts to stamp it out by moral reform and legal enactments have never been successful and many governments have tolerated and not infrequently protected it. It is upheld on the ground that it is a necessary evil if the virtue of women in general is to be maintained.

It goes without saying that prostitution is ruinous to the lives of the women engaged in it. Its effect upon the men and upon the women who have married or may later marry such men must be considered under two categories. The first is the emotional and moral effect of such degradation of the



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Instead of the kiss as an evidence of affection, the natives of Dyak, in Borneo, rub noses as one of their customs in courtship.

Promiscuity

1820 POSTPONEMENT OF MARRIAGE

sexual relation. No man is made happier in his relation with his wife because of his past or present relations with prostitutes. The realization that he has degraded the sexual function in a loveless relation must necessarily lessen the ennobling qualities of that relation when founded on love. That women have been taught to tolerate such lapses is no proof that they are not resented. When discovered they come as a shock to every girl, and undoubtedly are responsible for much of the aversion with which many women regard the sexual relation.

But there are evils in prostitution more concrete than this emotional damage done to love. The danger of actual physical damage is too great to be ignored. Venereal disease is Nature's punishment for promiscuity.

Prostitution

The sex life of a prostitute does not in itself produce venereal disease but it enormously increases her chance of infection. Therefore, the man who patronizes these women always runs serious risk of infection. Once infected he becomes a source of danger to other women. If a man knowingly infects others with venereal disease he commits a crime that should subject him to criminal prosecution. The same, of course, applies to women. Modern science has made some progress in the prevention and cure of venereal disease but this progress has by no means been such as to take away all danger.

Certainly there is little in this brief survey of the broad aspects of sexual morality to justify any departure from the principles generally taught in modern society. Youth finds little argument on which to rest its case for rebellion against established ideals. In practice it makes no conscious effort to do so. As a matter of fact, rebellion is not against monogamous marriage nor the social demand for the protection of children. It is rather against the social rule that delays marriage for many years after an awakened nature demands sexual mating. In this fact alone there is involved a most baffling problem, one demanding such full consideration that it will be discussed under a separate head.

POSTPONEMENT OF MARRIAGE.—The problems of the unmarried are caused chiefly by delay of legal mating long after sexual powers have developed. This brings about a struggle between Nature and civilization. It seems either that Nature or civilization has blundered.

That the fault may not all be on the part of civilization becomes apparent when it is realized that puberty comes before the completion of growth and the maturity of the mind. This actually seems to be one of Nature's mistakes and a case in which human intelligence does improve the race by curbing the sexual function till full physical maturity has been reached. Perhaps this anomaly can be understood better if one pictures the evolution of the race through the ages when the struggle for existence was so keen that the species was in constant danger of annihilation.

In any group of animals or primitive human beings, the problem of the survival of the species depended upon the fitness and the number of individuals in each succeeding generation. As long as the danger of death from beasts or famine or disease or exposure was great there was the constant possibility that the whole generation would perish. Under those circumstances the earlier in life the next generation was born and the more numerous the offspring the greater the likelihood of tribe survival.

As civilization developed and the struggle for existence became less severe and of a different nature the advantages of early motherhood became less and those of delayed motherhood greater. There is no advantage to the mother or the child in the birth of children before the full physical maturity of the mother. Such premature motherhood impairs the mother's growth, health and vitality, and has similar effects upon the child. Moreover, when for the good of society it becomes necessary to limit the number of children it is pre-eminently advantageous to the race that each mother bear these children in the prime of her physical life. Just what that age is and when a woman should bear her first child is a matter of some dispute. Certainly the age is several years after puberty.

Early and
Late
Marriage

However, these purely physical factors are not the only ones that enter into the problem. The world has as yet found no better system of rearing children than that of the monogamous home in which the mother is the home-maker and the father the bread-winner. This economic factor, more than any physical one, accounts for the delay of marriage in civilized life. The greater the complications of civilization and the

**Delayed
Marriage**

higher the educational and professional standards the longer must be this period of delay.

This delay of marriage in the modern world is resulting in two makeshift solutions. One is the early marriage which, by the aid of birth control, remains barren while the young wife continues to work and help support the home. The other, which certainly is no solution, is premarital sexual life. Even those who might approve of the latter status for a man of twenty-eight or a woman of twenty-five can hardly approve of it for a boy of eighteen or a girl of sixteen. Yet once let the social opposition to such premarital relations be broken down and there will be difficulty in stopping its spread to younger and younger groups. Eventually it may threaten even the high schools and reach those who, physically and mentally, are little more than children. This backwash of freedom and license, from the older and more sophisticated groups to the younger and more innocent, constitutes a serious problem in the present sexual life of young people.

In so far as the problem is one of delayed marriage the sensible thing is to encourage, or at least not to forbid, early marriage. The apologists for delayed marriage may contend that young people must acquire a great deal of wisdom before they know enough to select a proper mate. But this seems not to work out in practice beyond a reasonable age. The youngsters of seventeen who elope certainly are likely enough to blunder. But girls nineteen to twenty-two and boys of twenty-two to twenty-five seem to know their own minds about marriage and to be quite as competent to pick out suitable mates as those who delay marriage to a much later age. The woman who doesn't marry till her thirties is quite as likely to divorce her husband as the woman who married in her early twenties.

No matter from what point of view the problem is considered, there is no physical advantage in delaying marriage beyond full maturity. Any advantages that come from further delay are almost wholly economic. Often these are merely illusions.

While the delay of marriage is in many ways an evil it can hardly be contended that in the modern world such unions can be made young enough to avoid several years of active

sexual instincts that can find no approved expression. This must be squarely faced as a fact of life that cannot be avoided, for all the experiences of the human race above the level of savagery indicate that the marriage of those who are physically immature is destructive to racial welfare.

SEXUAL STARVATION, CELIBACY AND CONTINENCE.—The effect upon the physical and the mental health of complete sexual abstinence is one of the most disputed questions in hygiene. Many difficulties are in the way of getting at the truth in this matter. Basic facts with which the student has to deal are hard to secure, for secrets of the sexual life of unmarried people are carefully guarded and there is no easy way to get reliable data from any large number of individuals. The fact that one is unmarried does not prove one is unmated. Outside observation or the mere gathering of statistics about the health and longevity of unmarried persons is meaningless and from it no accurate conclusions can be drawn.

Sexual
Abstinence

A second difficulty, even if the full truth were known, lies in the fact that the practice of masturbation is a state of sexual activity that is neither normal sex life nor complete sex starvation in the physiological sense. In the case of males, especially, the question is still further complicated by the fact that, while there may be neither sexual intercourse nor masturbation, there may be sexual dreams, with the consequent release of seminal fluid.

The nearest one can get at the truth of the whole matter is to say that life without sexual mating is an unnatural, and therefore an undesirable state of existence. Statistics of longevity show that married men live longer than bachelors; but here, too, one must go beyond the obvious fact and consider how much this element of longer life is due to the effects of a normal life and how much to the selective instinct by which women tend to choose the more vital men for husbands.

Certainly all the evidence of statistics seems to favor marriage as the condition of life most conducive to happiness, health and longevity. But this evidence is by no means so conclusive as to warrant its acceptance as an argument for maintaining irregular sexual relations outside of marriage, for these are fraught with many elements of danger, worry

and unhappiness not associated with the institution of marriage.

With these general observations based on common sense to clear the atmosphere, the question of continence from the point of view of the medical specialist can now be considered.

At the risk of seeming to overstress the case for continence, an observation that cannot fail to be of tremendous import to everyone interested in physical culture must be quoted from the work of Frederick B. Sturgis:

Continence
and Strength

“Trainers of pugilists and of men who are entering for athletic contests are well aware of the effect sexual intercourse exerts upon the physical and mental condition of every man, and coitus is the one thing which is rigidly excluded, and about which the strictest views are held. An ex-pugilist has told me that when he was training for a fight, at the beginning, he suffered a great deal from want of intercourse, his seminal losses were frequent, and he had large and repeated pollutions, but in a short time, as soon as he got thoroughly into his work, these entirely disappeared and indeed he thought no more about them, but as soon as his work was finished and the fight was over, he found that sexually he was as good as ever. I am satisfied, not only from this man’s experience but from others with whom I have talked, that in such cases there is no loss of power from sexual abstinence, provided always the patient is not keeping his genital organs continually irritated by dallying with women, by reading, talking, or thinking about matters connected with sexual intercourse.”

There is, however, still another phase of this subject which must be considered. This deals with what might be termed the prevention of abnormal sexual stimulation. Pernicious overstimulation is undoubtedly one of the greatest of evils associated with the sexual life. It grows out of an unwholesome and morbid interest in sex matters and the continuous stimulation of that interest. It may be said to be a case of “playing with fire,” trying to see how close one may come to it without getting burnt. It consists in the practice of stimulating both imagination and desire, and at the same time preventing the complete physiological satisfaction of the desire. If the passions are aroused there is a physiological require-

ment in the way of gratification. Even if this gratification is not always moral at least it is always physiological. If the natural culmination is prevented it is detrimental from both physiological and neurological standpoints.

Of course, the solution of this problem in the case of the unmarried is both plain and simple. It calls for mental chastity. Apart from the natural associations of normal married life, the only healthy rule is that one should conduct oneself in such a way that the sex instinct is not stimulated, avoiding associations which call into activity the slumbering forces.

The young man or woman who uses, as an excuse for illicit sexual indulgence, the fact that constantly aroused and ungratified sexual passion is harmful, is a little like the man who gets drunk so he may beat his wife. The blame lies in arousing the passionate condition. Indeed, there is little moral credit and certainly no advantage to health in living a life in which, while technically remaining virtuous, one is constantly indulging in the acts and emotions that normally lead to sexual gratification. The “gold digger” type of girl, even if she accepts no actual gold, is destructive of the health and morality of the men she tempts, even if she slips from them and so maintains her physiological virtue.

THE FALLACY OF “FREE LOVE.”—Among the more radically minded, and especially in cities where individual lives are freest from the control of public opinion, a few people can be found who advocate the doctrine of “free love.” But the trouble with free love lies in the fact that it is never free and is seldom love.

The serious advocate of free love is usually an enthusiastic and misguided youthful spirit who finds romance or idealism in opposition to the institution of marriage. Just as anarchy opposes an established form of government, it is essentially the outcome of a radical turn of mind to oppose the established order of society in the institution of marriage.

The majority of people who indulge in sex relations outside of marriage do so clandestinely and make no effort to justify themselves. They do not bother to excuse their experiences with logic or high-sounding phrases. They make no claim that they are defying the laws of society; they merely

Extra-
Marital
“Affairs”

break these laws secretly. The free-lover is bolder. He does not attempt to hide his attitude toward the institution of marriage but boasts about it, though for practical reasons his boasts may be confined to a rather narrow group of acquaintances from whom he expects sympathy.

Perhaps the most common argument young free-lovers advance is based on their observation that many marriages are unhappy and either end in divorce or a desire for divorce that cannot be obtained. This difficulty of severing the tie seems to them an unnecessary bondage placed upon love. They may feel that they wish to be bound only as long as love lasts and be free to separate when it dies.

Are Men
Freer than
Women?

Probably girls, more often than men, come sincerely to such conclusions. But when a girl expresses such conviction to a man to whom she is at all attractive he finds no trouble in persuading her, and perhaps himself, that he agrees. Men have always felt much freer than women to take their love where they find it. They instinctively feel that the woman will try to hold them, and hence, when one declares that she will not, she becomes more attractive in their eyes. Therefore many men who ought to know better honestly fall in love with such bold-spirited girls who, because of their very bravado, appear to be heroines.

On such feelings and such reasonings are free-love unions founded. While the feelings and illusions last they may be poetically beautiful, much as are the Utopian dreams of ideal anarchy where men need no laws nor governments because all men actually feel themselves to be brothers. But these unions rarely, if ever, last. They commonly end in regrets and misery. The reasons seem to be as follows:

First, free-love relations are likely to be entered into more readily than marriage. For instance, many young people away from home enter such relations with persons of different race or religion whom they would hesitate to marry, because they know that such mates would not be gracefully accepted by their folk back home.

Secondly, the free-love relation is usually thought of from the start as a childless one. Many people, from sincere motives, hesitate at the thought of bringing children into the world out of wedlock, though they may have no scruples

against living out of wedlock themselves. Therefore, from the start the free-love union is an incomplete one.

A third factor which tends to wreck these unions is the realization that they are free. Jealousy flames easily when the partners realize that they have no legal hold on each other.

The freedom, too, may turn out to be illusory. Many men have entered into such relations with an idealism higher than that with which the average man enters marriage. But when love cools, as it is only too likely to do, the man may find that the idea of breaking the union and leaving the girl is a much more serious problem to him than a divorce would be. There is always the question, "What will become of the girl?"

A liberal mind cannot help admiring the idealization of love which convinces young people that it and they are above the law and that for them no marriage is necessary. After many years of life in a large city where such unions are common enough, the liberal mind is profoundly impressed, not with the inherent weakness of love, but with its illusory folly. The plan simply does not work. Therefore, if you are in love, get married!

Marriage is not an institution for the suppression of love, but for its protection. It is a home for love that may become a prison from which there is no escape but divorce; but if you are thinking of that possibility at the very beginning of love something is wrong with your love and you had better let it die and find another.

Faith Essen-
tial to
Marriage

The problem of just how much freedom there should be in marriage is a serious one, and doubly serious when two people have radically different ideas about it. But it is a problem you should settle in the early stages of the love affair and call the match off if the ideals are too divergent. The period of love-making is for the purpose of enabling young people to pick someone who is a logical mate.

The problem cannot be solved by any form of marriage that is entered into in a mood of uncertainty and dispute about fundamental questions. To love and cherish "till death do us part" may sometimes be an ideal beyond one's power to realize, but at least it voices the faith of love without which there can never be a permanently happy mating, no matter

by what form of ceremony or lack of ceremony the union is solemnized.

Platonic
Love

THE ILLUSION OF "PLATONIC LOVE."—Plato, profound Greek philosopher, dreamed of a Utopian world where everything should be ideal and the troublesome problems of living would all disappear. One of his illusions was of a state of love between men and women wholly free from sexual desire. From this comes the ideal of "Platonic love," a will-o'-the-wisp grasped at by occasional foolish young people.

Needless to say it always eludes the grasp. Certainly there can be friendships between men and women, but they do not deserve the name of love unless there is a true element of sexual attraction. Nor would Plato have proposed such a thing if his wisdom had included knowledge of modern biology and psychology.

To make this clear it should be pointed out that the ideal of this Platonic love involves a passionate element of a purely spiritual nature. It attempts to secure the intensity of love without admitting the existence of physical attraction, which is, of course, what makes the mental love between a man and a woman intense and different from the bonds of friendship between man and man or woman and woman.

The idea of Platonic love usually comes to young people who have fallen in love but whose experience, education or training has been such that they have some fear of, or aversion to, the thought of sexual mating. As would be expected from the present state of moral standards and education, Platonic love more often appeals to girls and women than to men and boys. However, it is not an uncommon experience to find a bashful, poetic or dreamy boy who falls under the spell of this illusion.

Platonic love is a dangerous thing to dream of, for the simple reason that it encourages people to play with fire while they deny to themselves that fire exists and will burn. To be drawn by the forces of sexual attraction and yet utterly to deny the existence of the force is folly. The folly becomes much greater when young people discuss their love and plot with each other to call a spade by some other name and say their love is Platonic.

When two simple-souled people honestly fall under the

illusion that their love is Platonic there is usually either a speedy cooling of the real affection or a case of double suppression. Ordinarily the suppression ends in an explosion which brings the dreamers to their senses so they can admit that their case is one of real love. If this does not occur there is a prolonged period of nervous tension which undermines the physical and mental health. This condition may lead to mutual boredom or quarrels and so end the affair.

Cases of love in which there is some good reason why marriage cannot follow are in a different category. Such people will always be happier if they part, for to continue to see each other means misery for one or both of them, often for others as well.

Like life, love has its birth, growth and old age. It starts later than life and yet, skillfully handled, it ends only with death. Of course this comparison of the growth of love and life is not exact, since every one knows that a man or a woman can have many loves in one life. Indeed, there are reasons to believe that, before the final and lasting love comes, a certain amount of emotional experimentation in youth is desirable. Upon this experience a solid foundation for marriage may rest.

Life Time of
Love

These early loves, however, should be psychologically in accord with the ages of the individuals concerned. A boy of twenty does not and should not make love with the directness of a man of forty. Should a girl of seventeen transiently experience the final love relations, either with or without matrimony, she probably will not be an ideal mate for a young man. The incongruity between her youth and her experience are felt instinctively. A woman who passes her girlhood without love and finds it only in later years also labors under a great disadvantage. But if she mates with a man of suitable age, her love may have an element of beauty and dignity unknown to the younger lover.

Similarly, the love of a middle-aged man for a young girl is less natural and less beautiful than it would be if it were given to an older woman. The man of forty may be well mated to the woman of thirty, but he will sweep the girl of eighteen through the preliminary stages of love too rapidly, thus causing her to miss much that life owes her.

**Age and
Youth in
Love**

When the relative ages are reversed, as when a woman of thirty makes love to a boy of twenty, society instinctively disapproves. The reason for this lies in the fact that the older and more experienced woman has long since passed the natural age of youthful love. This makes her the aggressor in the courtship, which reversal of the usual relation seems fundamentally opposed to the instinct that makes the male the pursuer and the female the quarry.

In the natural love of youth, the mental and emotional phases outrun the physical. This is the dream of bliss frequently and unnaturally sought as a permanent thing under the name of Platonic love, a love which feels no conscious need of a sexual consummation. However, the sexual nature of this attraction cannot forever be suppressed; ultimately either Platonic love dies or sexual love asserts itself.

Obviously it would be far better to be honest and say: "This is a beautiful and growing stage of love," than to say: "This is a different kind of love." Nature knows but one kind of love between man and woman. Rightly understood, Platonic love, so-called, is nothing but a casual friendship that feels no jealousy, gives no thrill, seeks no tryst and demands no poetry.

**Premarital
Intimacies**

INTIMACIES BEFORE MARRIAGE.—Let us clear the whole atmosphere of hypocrisy by frankly admitting the important part that sex plays in all elements of attraction between men and women, and that Nature has taken extraordinary pains to make the opposite sex seem desirable. Were this not true her whole scheme would go wrong. A man who does not feel and frankly admit that members of the opposite sex are more attractive to him than those of his own is decidedly abnormal. The same is true of women.

This general sexual attraction in the human species is through the sense of vision. A man has a right to look upon the beauty of all women. How much of the feminine body is to be gazed upon in this fashion has nothing to do with instinct. It is wholly a matter of the customs of the country, time and place.

The impulse to pet is based essentially on a pleasurable reaction to the sense of touch. It is individual in its appeal, not universal, as in the case of vision. In the normal course

of attraction vision aids one to select a particular individual, whereas the sense of touch carries the test of the attraction to a second degree of response that must be mutual to indicate a desirable basis for love and marriage. The moment a man touches a woman she feels, and should feel, an individual and personal response that is indicative of the process of sexual selection. If his touch is repulsive, she is not for him nor he for her. If it thrills her, Nature is satisfied, although society and her own mental and moral



PHOTOGRAPH WIDE WORLD

Among many races there is a tendency to decorate the person rather than the dress, both to attract a desirable mate, and to show off the family wealth. This Mongol belle, belonging to a race which is extremely modest, even prudish, about any display of the body, concentrates all decoration in this heavy head-dress.

Attraction
between
Sexes

make-up may still have some good reason for disapproving.

In the actual response there is really little difference between one portion of the human body and another, except in the primary and secondary sexual organs. Any other distinctions have been made by custom or by costume. When the temptation to unwise and too familiar preliminary sexual play is strong, and there is nothing to warrant the expectation of marriage, the couple had best separate. But if they are engaged they have a choice of two wise courses: They may

either hasten the marriage or they may plan to meet each other only in the more active types of recreation, in the company of others or under conditions in which they will find themselves so occupied that this inclination to over-familiarity will have no opportunity to master them.

Physical Re-
actions of
Sex

In connection with these dangers, the fact cannot be too strongly emphasized that the social customs of this country do not give young people enough chance for athletic and outdoor recreations together, while they do give them too much opportunity for long hours alone in dark parlors, porch hammocks and automobiles. Bodily exposure and bodily activity of a non-sexual nature are the safe and sane modes of gaining the physical admiration of the opposite sex. Spooning in dark, cushioned corners can too easily arouse the sexual instinct between those who would feel contempt for such emotions on the hiking trail or the bathing beach.

The girl who is constantly guarded at home and chaperoned abroad is a creature of the past and probably will never be revived in Western civilization. The morals of youth must be taken care of by youth itself. All that older people can do is to educate the child and guide into wholesome channels the social life of young people. For this purpose there can be nothing better than the physical activity that embodies an element of love-play similar to that of birds, who strut and preen and flutter and sing during their courtship. Such conduct is perfectly natural, and this instinct in human courtship can best be met by the mutual sharing of swimming, boating, hiking and athletic games.

Physical activity, mutually participated in and mutually admired, is the best state of companionship in which to retain love without the sexual embrace. Any form of outdoor recreation that a man and a woman can enjoy together is a natural safety-valve for those lovers who are not yet ready to marry. For that matter, it is wise to continue such activity into married life, as otherwise it is all too likely to lead to intellectual boredom and overindulgence in mere sexuality.

SEXUAL DREAMS AND MASTURBATION.—Sexual dreams, with resultant loss of the seminal fluid, are rarely, if ever, observed in animals except man. These two problems of sexual dreams and masturbation really should be considered together,

since the causes and, to a great extent, the effects of each are undoubtedly the same.

The feature that distinguishes them most clearly is that the sexual dream is beyond the control of the conscious mind, whereas masturbation is conscious. Therefore those who practice masturbation almost invariably have a sense of guilt that they do not feel in regard to sexual dreams. Yet the cause back of each is the stimulation of the sexual nature.

Man undoubtedly is more highly sexed than are the lower animals. This condition may be said to have served to offset the extreme need of human young with their relatively long period of helplessness. Had human sexual attraction been operative for only the brief period necessary for fertilization the woman would have been deserted by the man, leaving her and her baby prey to wild beasts. Therefore, by natural selection, a greater degree and permanence of sexuality developed in the human race than in other species because those men who possessed it were more inclined to remain with and protect their women, while the women who possessed it held their men better than those who did not.

The origin of the high degree of sexuality in the human species may seem to have little to do with the subject of masturbation; yet the relation is rather close. In married life the highly-sexed nature of man leads to frequent indulgence in sexual relations, while for the unmarried the nervous forces that have been built into the organism find no such expression and hence seek other forms of release. This certainly accounts for the sexual dream, which is wholly unconscious and beyond control. It also accounts for masturbation which, having once been practiced, is usually continued until the normal form of sexual relief becomes available.

"Auto-erotism" is the name applied to masturbation by Havelock Ellis, Dr. W. F. Robie and other sexologists. One of the greatest difficulties in controlling the practice is that thinking and worrying about it only stimulate the feeling behind the urge. Therefore, most sexologists who have studied the matter urge parents and teachers to take no active disciplinary steps, but rather to try and change the habits and interests of those addicted to the practice so that there will be less time and opportunity to dwell on the thoughts that

**Auto-
Erotism, or
Masturba-
tion**

lead to it. Athletics and vigorous outdoor life for young people are two of the best possible checks.

Another reassuring fact for parents is that modern scientists, after careful investigation of the matter, are of the opinion that older authorities greatly exaggerated the harm incident to the practice. Earlier observers had noted that puny, listless children who were a great deal indoors and especially those who did not sleep soundly but remained in bed when not sleeping were likely to be addicted to excessive masturbation. A still more terrifying fact is that masturbation is common among the occupants of insane asylums; since when two things are commonly found associated the presumption is that one is the cause of the other, it was assumed in this case that the listlessness and the indoor habits and even the insanity were caused by masturbation. The more modern view is that these things cause masturbation rather than being caused by it. A puny child lying in bed when he should be outdoors at play is likely to masturbate because he has no other sufficiently appealing occupation for his mind and body. As for the inmates of the insane asylum it is practically inevitable that, having no normal sexual life and with broken minds knowing neither normal interests nor self-restraint, they should fall into the habit.

Injury
through
Auto-
Erotism

The best way, therefore, to prevent a boy from acquiring this habit or to check it if already acquired is to see that he does not live the idle life of a caged monkey. Nor is it of any use to warn children against it, for this only stimulates curiosity. This may seem an unsound doctrine, for certainly one would not refrain from telling a child not to steal lest that tempt him to do so; but the case is different. The urge for sexual relief that leads to sexual dreams and to masturbation is a physical, as well as mental thing, and each acts to accentuate the other. Thoughts about the subject will be likely to cause the feeling that suggests the act. Therefore the whole problem of control is to divert the mind from the subject.

This does not mean, of course, that the whole subject of sex should be avoided lest it lead to sexual thoughts. These thoughts, and the curiosities that prompt them, come naturally to children. If the subject is shrouded in secrecy and mystery, it will certainly stimulate greater curiosity and drive the chil-

dren to seek information from other children and very likely lead to the discussion and practice of masturbation.

While the evils of masturbation have no doubt been greatly exaggerated, some ultra-modern writers are inclined to go to the other extreme and say that it is harmless. The instinctive self-condemnation that any normal individual who indulges in the practice feels, causing him to keep it secret, must be based upon some fundamental reason. The argument that the seminal fluid must be discharged as it accumulates, as if it were a product of body waste, is not altogether sound.

Even if it is conceded that there is no other element of injury in masturbation than the mere loss of the seminal fluid it would still be dangerous because the ease with which it can be practiced may readily lead to exceedingly frequent indulgence, and this can hardly result in anything but the ultimate weakening of the sexual glands.

The whole effort to conquer the practice of masturbation should be directed to keeping both mind and body active and interested in other matters and in avoiding circumstances and—
locations in which the habit has been practiced in the past. A sheer exertion of will-power almost invariably ends in failure, and to subject oneself to temptation in order to see if it can be overcome is particularly unwise. The reason for this is that any concentration of the thoughts upon the sexual organs or functions arouses them to greater demands for relief. Hence most tricks or schemes for breaking the habit only make matters worse.

Conquering
Self-Abuse

The one effective method is to forget it, and the one way by which it can be forgotten is to fill the mind with other interests and exercise the body in such a fashion that one will sleep soundly. Going to bed when one is not sleepy, or lying in bed after one wakes, is an obvious playing with fire for one who has once formed the habit of masturbating. Physiologically, the full bladder may cause erection. Therefore one should resolutely form the habit of jumping out of bed at the moment of waking, and emptying the bladder. If this action can be followed by a cold shower, so much the better. Engaging immediately in some active physical exercise will also have the effect of promptly relieving any engorgement of the sexual organs.

Auto-
Erotism in
Boys and
Girls

Auto-erotism is more enervating to the boy than to the girl because of the definite loss of the seminal fluid. This is true also of sex dreams, which in boys and men result in seminal losses. In the case of the female the worst that can result, either from dreams or masturbation, is the sex orgasm, or sudden release of nervous tension, which is the normal end of the sexual act. There is no loss of a vitally important physical substance.

Seminal loss in sexual dreams may seem more terrifying than the same loss through auto-erotism, because the dream loss is beyond control and the boy feels that there is no way to stop it. Such losses, however, are only of surplus accumulations which, by their presence, are really responsible for the nervous state that produces the dream. Unless unduly stimulated by the additional practice of masturbation, these losses are rarely, if ever, more frequent or greater in amount than the seminal secretions of a healthy married man sexually well mated. Hence the mere fact of such losses need occasion no anxiety. If, however, the dream is the result of much morbid sex thought, producing worry, fear and self-condemnation, the destructive nervous effect may be considerable. But the actual sexual dream, with the orgasm and seminal loss, marks the end of this nervous strain and may be a good thing. The whole problem of such night losses is really one of nerves. Those who suffer most are those whom the dreams most worry.

The truth of this statement is demonstrated by the fact that those who suffer from either night losses or masturbation find that, when their fears are removed, the night losses become less frequent and the desire to masturbate less urgent. If they could forget the subject altogether the result probably would be only occasional night losses.

Another serious problem which all young men must face is the question as to whether night losses or the habit of masturbation is a sufficient evil to justify their seeking relations with the opposite sex in order to overcome it.

Sex Rela-
tions Outside
Marriage

At first thought it will appear to many that, of the various forms of sexual gratification, the normal sex relation is naturally the most desirable. But the matter is not so simple as that. Any sexual relation with a woman, outside of marriage, places a great burden upon the man. If his companion

in the act is a virgin it involves a deep sense of moral obligation. In the conventional phrase he "ruins" the girl. That is a matter that can be treated lightly only by a hardening of the conscience and a consequent loss of something noble and fine. By such relationship a man may protect himself from the danger of venereal infection, but only at the cost of burdening himself with obligations and worries that are not easy to carry. If the girl is one who confesses to prior sex experiences, that relieves a man of part of the sense of moral responsibility but subjects him to the fear of venereal infection. There is also the danger that the girl may become pregnant. If he is the only man with whom she is intimate the responsibility for such a condition rests solely upon him. But if there be other men involved he has the additional fear that he may be held responsible for a child not his own.

To avoid such worries men have been driven to consort with prostitutes with whom they may feel free from all such responsibilities. But here the risk of venereal infection becomes greatly augmented and there is created a sense of degradation as the result of a relation that has no semblance of love. In short, any survey of the possibilities leads to the conclusion that a boy or a man who seeks escape from sexual troubles by taking them to a woman not his wife, has jumped from the frying-pan into the fire. To struggle with the problem alone until it can be solved by marriage is the only safe as well as the only heroic thing to do.

HOMOSEXUALITY.—Homosexuality, or sexual relationship between members of the same sex, is a purely human perversion opposed to all normal instincts and abhorred and deprecated by normal people. Various degrees of it are found among almost all races and its recorded history goes back several thousand years.

Homo-
sexuality

It seems to increase with the growth of congested civilization and with artificial conditions in which normal love is denied. Life in sailing vessels, encampments of men, boarding schools, and all other such artificial environments where members of the same sex are herded together and members of the opposite sex shut out, naturally results not only in the greater development of masturbation but in possible outbreaks of homosexuality.

Against this view of homosexuality is the explanation that the tendency is inherited and that some people are born who have a mixed sexual nature. There is just enough truth in this statement to lend plausibility to it and arouse a morbid curiosity. Since both sexes are merely specialized developments from a single intermediate type there are of course many physical vestiges of each sex in the other. The rudimentary nipples on a man's chest are the most familiar example of such vestiges. There are also very rare types called hermaphrodites that actually possess the sexual organs of both sexes, though those of one sex are rudimentary and non-functioning.

Just as an individual alone can find various means of exciting his or her own sexual reactions, so two individuals of the same sex can arouse artificial and unnatural sexual excitations in each other. Like all other vicious habits, this one can grow to become a slavery.

Youthful
Attach-
ments

A less serious phase of this question is the common "crush" or sentimental attachment that adolescent girls form for each other. Happily, in the vast majority of cases this is innocent enough, for there is no realization that it has any actual sexual nature. Psychologists say such attachments are subconscious substitutes for love. Instinctively men and boys dislike to see girls mooning about with their arms around each other or exchanging frequent kisses. In those boarding schools in which girls sleep together, there is real danger that such relations may develop into homosexual practices. But parents and others having charge of young people can make no greater mistake than in assuming, without positive evidence, that such conditions have developed. Those accused have every right to feel resentful and insulted if they understand what is meant. A far better means of control is to change any circumstances of life that might encourage the development of this practice.

As in the case of masturbation, accusation, when made against innocent parties, is likely to start morbid thoughts along the line in question. Even in case the accusation is justified the element of shame and guilt will prove a destructive psychological factor. It would be far better to separate such young people without letting them become aware of the reason for doing so.

tributes of femininity are not entirely dependent upon the ovaries, as was formerly believed. With insufficient thyroid secretion there is arrest of genital development, suppression of the menstrual flow and shriveling of the uterus, together with lessened sex impulse. Hyper-activity of the thyroid accompanies sex activity in women. It was an ancient custom in some countries to measure the necks of newly married women in order to ascertain their virginity. This custom still persists in some parts of Europe.

The *adrenals*, one of which is above each kidney, are of great importance in the human economy. Their secretion, together with the hemoglobin of the red blood-cells, forms a compound which aids in carrying oxygen to the tissue cells. It is also supposed to help oxidation within the tissues. Therefore, it aids in building up all of the tissues, including those of the sex organs. A well-developed adrenal power, combined with the proper balance of the gonads and with pituitary efficiency, makes the best combination of strength, virility and sex appeal, especially in man.

The Adrenals
and Sex

The *pituitary gland* is at the base of the skull, about centrally located from front to back. It consists of two portions or lobes, an anterior and a posterior. The secretions of these two lobes differ greatly from each other in their effect upon the body. In some extreme cases of abnormal action of these glands sex development is arrested. On the other hand, an initiation of puberty has been induced experimentally by grafting small pieces of pituitary gland into young and immature animals. These effects included all the mating and reproductive instincts. It is claimed, therefore, that the pituitary gland controls puberty.

Influence of
the Pituitary
Gland

Injury to the pituitary in young or growing animals causes a retardation of the growth and activity of the thyroid and adrenals, as well as of the gonads. Pituitrin is believed to be the internal secretion of the posterior lobe of the pituitary. When injected into a female it has among its properties that of causing intense and continued contraction of the bladder and of the uterus.

The *thymus gland* is in the upper chest, extending from the lower border of the thyroid to the pericardium or membrane covering the heart. It is distinctly a gland of infancy.

Sex and the
Thymus
Gland

Normally it shrivels in early life and becomes small and inactive upon the arrival of adolescence. The thymus is supposed to have great restraining influence upon the sex apparatus, preventing precocious sex development. In many cases when the gland is active beyond adolescence, childish characteristics persist and may be responsible for the individual's possession of certain physical and moral conditions such as are found in many sex degenerates, especially in the homosexual type.

**The Breasts
or Mammary
Glands**

The *pineal gland*, a small gland at the base of the brain within the skull, seems to have a restraining action upon the gonads. This has apparently been proved by experimental work which shows that lessened activity or removal of the gland produced sex precocity. In some cases of tumors of this gland there is an abnormal enlargement of the sex organs and of the breasts.

The *breasts* or *mammary glands*, in addition to the secretion of milk, are supposed to yield an internal secretion which has a controlling influence upon the uterus and the ovaries. This is apparently shown by the fact that in cases of uterine hemorrhage from the presence of fibroid tumors and also in cases of too frequent or too profuse menstruation, breast stimulation, which causes the production of a greater amount of their internal secretion, will often check the hemorrhage and sometimes reestablish normal menstrual periods. Nursing also tends to hasten contraction of the uterus after childbirth and to retard the reappearance of menstruation.

**The Prostate
Gland**

The *prostate gland*, through its hormones or internal secretions is supposed to have considerable influence upon the sex apparatus. Lessened activity is likely to produce lessened potency, while in enlargement of the gland there is likely to be genital excitation.

The actual physical characteristics of sex should be thoroughly understood. They serve to distinguish one sex from the other independently of the sex organs. Their possession makes for real masculinity or real femininity and develops the appearance, manners and attraction that in large part constitute sex appeal. Nearly all men possess some feminine characteristics, and nearly all women have some masculine characteristics.

The generative organs, both male and female, can rightly be termed the *primary sex characteristics*. These are the physical organs by which the sexes are distinguished. They are organs for emission and reception in immediate relation to the sex glands. But other structures are possessed by either the male or the female—never, as a rule by both—which, while not primary, are considered as showing, in a more or less indirect way, the sex of the possessor. Anatomists have called these *secondary sexual characteristics*, applying the term to such structures as the red comb of the rooster, the antlers of the stag, the spurs of the cock. Charles Darwin in his *Descent of Man* mentions these secondary sexual characteristics, but he does not define them very clearly. On the contrary, he points out that such characteristics gradually merge into the primary organs and that “unless indeed we confine the term ‘primary’ to the reproductive glands, it is scarcely possible to decide which ought to be called primary and which secondary.” As already stated, when speaking of the human race it is proper to refer to the sexual organs and glands as “primary sexual characteristics,” because they are essential to reproduction.

**Primary and
Secondary
Sexual Char-
acteristics**

PUBERTY—ADOLESCENCE.—At exactly what age do sexual stimuli first occur? This subject is more or less controversial in character. Doubtless very young children, even infants, perform certain unconscious acts considered by some writers as indicative of a sex complex, though, of course, not in any way understood by the child.

PUBERTY.—The procreative ability begins to develop with the onset of puberty. In temperate climates, such as the Northern United States, this usually takes place from the eleventh to the fourteenth year. In colder climates, such as Norway and Sweden, it may be deferred even to the sixteenth year. In tropical lands, girls mature at nine to eleven years and at fifteen or sixteen are in full possession of all faculties, with all the physical potentialities of fully matured women. In fact, many women among tropical races are mothers when fifteen to sixteen years old.

Puberty

As may not be known, this is a manifestation of the *forcing* effect of a superabundance of light and heat. It is definitely established that the actinic rays (the ultra-violet rays) of sun-

light accelerate growth and bring about a state of maturity much earlier than would otherwise be the case. Perhaps it may be true also that the diminished intensity of economic pressure and the relief from worry and the cares incidental to finding a livelihood, which are part of the burden of the white race living in temperate zones, also have an effect in facilitating the advent of adolescence.

The signs characteristic of puberty are easily recognized by the mother. In the girl there is an increase in the growth of hair around the pubes and other parts of the body, a definite enlargement of the breasts in accordance with the increasing in size of the mammary glands, also broadening of the pelvis and the hips in order to provide for the function of child-bearing. There is also a general increase in the roundness, fullness and grace of the entire body.

The male similarly has his period of puberty, corresponding to that of the female, although the physiological, psychic, mental and emotional changes are not nearly so well defined as they are in the case of the female. The larynx increases in dimensions and the voice becomes, first, the well-known intermediate high and low "cracked voice" of the adolescent boy, and later the permanently lower voice; a marked degree of sexual precocity is manifested (particularly obvious from the fact that in boys the habit of masturbation is frequently developed at this period); a definite growth of pubic hair and the beginning growth of facial hair and some slight changes in the physical structure occur, yet the change from the physical standpoint is not nearly so noticeable in the boy as in the girl.

Period of
Adolescence

ADOLESCENCE.—Adolescence is the period from puberty to maturity. At adolescence certain changes begin to occur. The sexual organism matures and becomes ready to function. The *boy* begins to change into the *man*; he becomes virile and capable of procreation. In the female the ovaries begin to function. Menstruation starts and the *girl* begins her change into a *woman*, "standing with reluctant feet where the brook and river meet."

At this time many of the secondary sexual characteristics begin to show. In the male, the voice changes, becomes deeper and more resonant, hair begins to grow upon the face and the

pubes, the muscular system develops and becomes stronger and the bones become heavier. In the female, the breasts begin to develop, the growth of hair upon the pubes becomes more marked, the figure begins to change, the hips becoming broader and the thighs thicker and heavier. The endocrine glands also begin to show changes, some of them undergoing regression while others develop and become more active.

Now also begin the first distinct stirrings of the sex instinct. Within the young man and the young woman there will be peculiar feelings which may not be, and generally are not, understood at first but which are distinctly sexual in nature.

MENSTRUATION.—This first appears in general between eleven and sixteen, and indicates that the girl is ripening for motherhood, becoming sexually mature.

The genital organs become engorged, a Graafian follicle ruptures, an ovum passes from the ovary to the Fallopian tubes and into the uterus, and there follows the first appearance of hemorrhage.

If the girl is prepared for this by sympathetic instructions from her mother, her teacher or her guardian, she is safeguarded against any feeling of alarm. She knows that a perfectly normal process is developing and she is prepared to aid Nature in every way to make this process as physiological and as natural as possible. Without such understanding many girls become highly nervous or hysterical when this function begins.

The interruption in the normal periodicity of the menstrual function in young girls should not occasion alarm, for with many girls intervals of several months may occur. However, the sudden stoppage of the flow during a period, because of exposure to cold or other influences, may be regarded with more or less alarm, so measures should be taken immediately for its relief.

**Interrupted
Menstruation**

During this changing status the organism requires a great amount of energy. For this reason it is particularly important that the girl should take care of herself and avoid especially all forms of nervous strain or undue excitement.

It is sometimes said that a girl should not be subjected to any marked physical exertion during this period. But this

advice is rather misleading in many cases, inasmuch as it may deter one from the practice of wholesome outdoor games and exercises. It is true that the girl should have as much rest as she needs, especially as much sleep as she can get, and that a great deal of violent exercise is not desirable.

But the young girl at this age, more than at any other time, should keep up her girlhood sports and open-air games. Remember that the necessary rest should be chiefly concerned with relief from all forms of nerve strain, rather than the cessation of physical activity. The physical disturbances incident to this trying period may be said to be in inverse proportion to the health and vigor of the individual, the frail girl of quiet indoor activities being likely to suffer considerably, while her strong and energetic cousin of the "tomboy" type will undergo the change from girlhood to womanhood with little or no inconvenience.

**Menstruation
and Age**

AGE AND MENSTRUATION.—Around the forty-fifth year, before or after in individual cases, menstruation ceases or begins to be irregular. Thus, on an average, the reproductive period of woman lasts thirty years. Thirteen times each year during that period menstruation occurs, in the majority of women.

The time of onset of menstruation has a definite bearing upon the time of its cessation. Contrary to what might be expected, the earlier it begins the later will it cease. Thus it may begin at the age of ten and end between the ages of fifty and fifty-two, giving a reproductive period of about forty years; or it may begin as late as twenty, and end between the ages of thirty and thirty-two, giving a reproductive period of only about ten years.

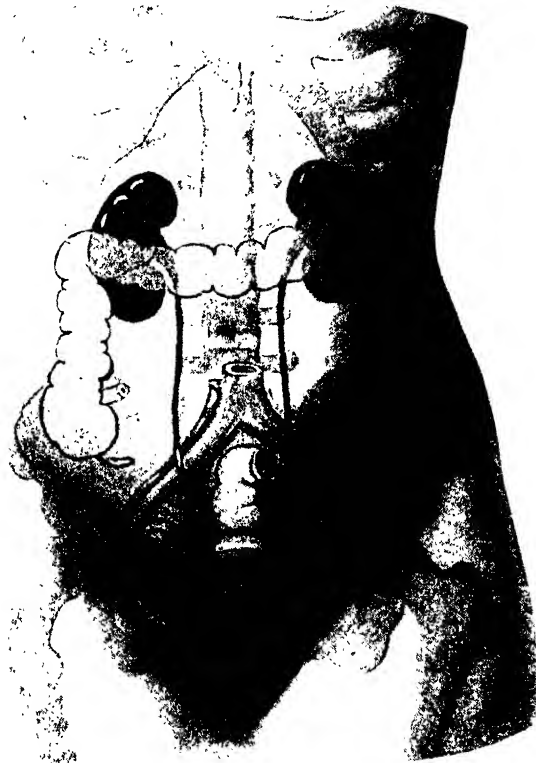
BIOLOGY OF MENSTRUATION.—In its fully developed form, menstruation is essentially a human characteristic. It exists in all races of mankind, but is absent in the lower forms of animal life, although there are traces of it among some of the higher animals, such as the mare, cow and dog. Among monkeys and apes in their natural wild condition there is a well-marked and copious menstruation. It has been found that the flow becomes progressively more abundant as the lower animal approaches man and as man ascends in the intellectual scale. Mentality, environment, education and nerve

stimulation are the chief factors in determining the earlier onset and the increased flow of the more highly civilized peoples.

The menstrual period, while lasting but a few days, is not indicative of a condition having only this duration. That is, it is but the climax of a physiological cycle which influences the woman physically and psychically throughout the entire lunar month. An appreciation of this fact is necessary if one is to understand the physical, mental and spiritual phases of a woman's existence. A woman is always on the upward or downward slope of a curve, the maximum of nervous irritability being reached on the third day prior to the onset of the flow, or at some time between this and the actual onset.

Just before the flow begins the woman is at the lowest ebb of all her processes. Toward the close of the period of flow there is a fairly quick rise and for another five or six days this rise continues. For a week or a little over after this the woman may be said to live on a comparatively level plane; then again begins the slow congestion, accompanied by a tensing of the nervous

Length of
Menstrual
Period



In this "phantom" view of the pelvic region in women appear the kidneys in darkest tones and depending from them the ureters that conduct urine to the bladder at the extreme lower abdomen. Above the bladder appears the uterus with Fallopian tubes leading up to the ovaries. The light-colored and irregularly-shaped tube back of the uterus shows the point of junction of the large intestine with the rectum. The descending, transverse and ascending colon, the latter with the slender vermiform appendix at its lower extremity, also appear in light tone.

system and a susceptibility to various influences. During the maximum of congestion, before the flow starts, the sexual emotions are strongest; hence at this time there is great likelihood of conception as a result of coition. Also at any time after menstruation up to from four to ten days (the number of days varying in different women and sometimes varying in the same woman) impregnation is likely to occur.

The Ovum
and Menstru-
ation

During the intra-menstrual period an ovum is ripening in a Graafian follicle, which latter is enlarging steadily and thinning the outer wall of the ovary immediately beneath which it lies. Upon complete ripening the follicle ruptures and the ovum escapes into the peritoneal cavity. The fimbriated or fingered end of the Fallopian tube is near, and it is probable that at the time of the escape of the ovum this approaches or even partially encircles the ovary so that the ovum will find its way readily into the minute opening at the end of one of the "fingers." The condition within the uterus probably also influences the ovum, assisting it to "find" the tubal opening and eventually reach the uterus.

About a week before the flow changes take place which prepare the uterus for the impregnated ovum—whether or not there is impregnation or even possibility of impregnation. The lining mucous membrane becomes congested, softened and less closely adherent to the underlying cells.

AVERAGE DURATION.—While the average length of the menstrual period is four to five days, many women do not follow this general rule. It may be roughly stated that the greatest number of women menstruate four or five days; the next greatest number menstruate seven days; and the next greatest number two or three days. There are other women who menstruate ten or twelve days or even longer, each month, one period almost running into the succeeding one. But these cases are generally not normal; they have some local or constitutional condition needing treatment—chronic catarrh of the uterus, uterine polypi, fibroid tumors, cancer and other malignant growths. Some other constitutional conditions may be the cause of too frequent, too profuse, or too protracted menstrual discharge.

The presence of organized clots or the retention of products of a terminated conception will also have an influence in pro-

ducing abnormal discharge of bloody fluid from the uterus.

An abnormally copious or long-continued flow is probably the result of abnormal psychological conditions and habits which encourage much sitting about, much lying in bed, irregular hours and excitement. It may also result from either mental or social conditions which involve much excitation of the sexual impulses without corresponding gratification. One fact seldom noted in discussions of menstruation is that, with all women, the duration, quantity and discomfort connected with the monthly period really varies greatly. It would seem that, at least within limits which may be imposed by inheritance or constitutional peculiarities, any woman might be able to work out a regimen which would greatly mitigate the burden, by observing herself and the conditions under which menstruation is either eased or made more troublesome.

Discomfort in
Menstruation

Some abnormal conditions are eased, many are aggravated during menstruation. Nervous disorders especially are inclined to increase in severity at this time. There is a rise and fall of all organic activities, in definite relation to menstruation—before, during, and after. Numerous organs and glands, including the tonsils, are congested during menstruation. It has been said that the young woman who is subject to repeated attacks of acute tonsillitis is highly sexed.

A large percentage of girls and women have disturbances of a local or general nature in direct relation to menstruation. Pain is the most frequent symptom. This may be slight or severe, or of any degree between these extremes. Some women in whom abnormal conditions prevail spend from one to five or even more days of each month in bed, suffering extreme pain during most of this time. Between menstrual periods there may be acute, little or no pain. Of course, a great many women have no discomfort and no general disturbance in connection with this monthly phenomenon. Among other abnormal symptoms associated with the period are general lassitude, headache, intestinal gas, belching, "sour stomach," general excitability, irregular appetite, frequent urination, drowsiness and tendency to sleep long and deeply, sensitive or painful breasts, disturbance of vision, darkening around the eyes, hoarseness, increase in bodily odor, backache, pains down the legs, crying spells and emotional outbreaks such as

dejection, gaiety, changing moods, irritability, or jealousy.

While certain toxic conditions may be intensified during menstruation and so come to the attention of the woman involved, it should be understood that these have probably existed independent of the monthly period. The symptoms usually associated with menstruation are simply the result of constipation or forms of eating which have caused a toxic condition.

Derangements
of Menstrua-
tion

Most women will find that if the diet is limited somewhat, and foods eaten which are vitalizing and laxative, especially during the week preceding menstruation, the symptoms of heaviness, dizziness, pain, fainting, and so forth, will partly or wholly disappear. In most cases it will be found that menstrual difficulties indicate something amiss in the habits of life generally, and not in the female organs in particular. In this monthly house cleaning women have what might be regarded as a rather valuable barometer of their general condition of health and emotional stability.

Sick headache, hysteria and even epileptic seizures may occur only at these periods, or may be more frequent or pronounced at such times. Suicide is more often committed by women while menstruating than between periods. Insane women usually cause much more trouble during menstruation than at any other time, all the manifestations of their insanity being intensified. Some people maintain that a woman's guilt or innocence in any act may depend upon the relation of that act to her menstrual cycle, and that even murder, of which the woman is actually innocent, may be committed during this period of menstruation. By this is meant that such psychic and emotional changes are possible in a more or less naturally unstable woman (and in some not at all unstable) as to impel her to an act from which her rational mind would protect her. In consideration of these possibilities in woman's offenses against society and the state this susceptibility to periodic emotional aberration should be taken into consideration.

However, it is hardly fair to Nature to imply that there is a direct connection between immorality or criminality and menstruation. The explanation lies in wrong sexual teaching and wrong habits of living in general. Some young girls undoubtedly associate chastity with a nervous tension, a deliber-

ate maintenance of frigidity in the sexual organs. The conflict of this tension, which is more or less moral, with the inevitable relaxation and increased sexual sensitiveness of menstruation, may be the cause of a good deal of pain among those who have difficulties during the monthly period.

Menstruation
and Morality

If it be true, as sometimes stated, that sporadic adultery and other sexual immorality are associated with the menstrual period, this is due to the fact that the impulses are stronger then. Possibly such lapses may occur in women who, through training or temperament, at other times are practically frigid. Usually, there is greater emotional responsiveness and instability at this time, but usually not enough to disturb a self-respecting woman. It seems reasonable to conclude that any woman of normal emotional and moral balance need not be greatly unbalanced by menstruation, and that, when she is unbalanced, there is something decidedly wrong in her training or outlook on life otherwise.

While self-control is often increased during this time, it is also often decreased, and moral infractions are committed that would not occur at other times. Thus during or near the menstrual period women may be guilty of shoplifting or may have a craving for alcoholic beverages though they be, in general, honest and abstemious.

In some women sexual desire and capacity for sexual response are greatly heightened immediately before menstruation, while in others these conditions are more noticeable after menstruation. It is thought by some investigators that this condition is definitely concerned with ovulation, or the rupture of the follicle and escape of the ovum. If the exact time of ovulation were known it would be comparatively easy for a woman to regulate her sexual habits for motherhood or for its avoidance.

CHANGE OF LIFE (*Menopause, Climacteric*).—With rare exceptions every woman reaches two physiological epochs: menstruation, at puberty, and its cessation at the menopause. The period of functional sexual activity of the female sex usually extends from the age of thirteen to sixteen years to somewhere between forty and fifty-two years. This is called the period of nubility, or the child-bearing period. Of the three terms given above denoting this period of cessation of

Nature of the
Change of
Life

1870 SYMPTOMS OF CHANGE OF LIFE

menstruation the first is preferable, as being more exact.

Menopause refers merely to the cessation of the menstrual flow, which is only one phase of the change through which a woman passes at this time. *Climacteric* is a more appropriate term, as it is derived from a Greek word meaning a rung of a ladder—indicating that the woman has reached another phase of life when she passes through the change. *Change of life* is more explicit, for this period serves not only as a boundary line between the period of fruitage and the remaining barren years, but it also marks the limit of the stage of general physical progression, deterioration from then on being the prevailing process, whether it advances slowly or rapidly. Hence there begins a definite change of life at this time, imperceptible though it may be, except in the period of evident menstrual cessation.

Age and the Menopause

As stated under *Age and Menstruation*, (page 1864) it is possible for a woman to tell approximately when her change of life will be due. The change may be premature (occurring before forty) or retarded (occurring after fifty-two). For the majority of women the period of cessation of menstruation will be in the relation to its onset given previously. The average duration of the change is about two and one-half years, though it may take place suddenly or it may extend over a period of five years.

The onset of the change of life and its symptoms are governed considerably by the general condition of the woman. Any disease that lowers the vitality may cause a cessation of menstruation and give rise to symptoms usually associated with change of life. Among these are tuberculosis, general anemia, chronic liver and kidney diseases, syphilis and acute wasting disease. Malignant diseases of the reproductive organs may cause a pronounced delay in the onset of the menopause, and even fibroid tumors, which are benign, may cause a similar delay, and each of these may prevent menopause for as long as they exist. Surgical removal of tumors, often necessary to save the woman's life, causes a cessation of menstruation, yet unless the ovaries be removed, actual change of life does not occur until the normal age for it. Obesity, when pronounced, usually causes sterility and early menopause.

Numerous occupations influence the change of life. Those

associated with high degrees of temperature, such as cooking, baking and laundering, greatly disturb the menstruation and may bring on premature menopause, with or without first causing an obesity. Occupations that impair the vitality and nutrition have the same effect. Persons who work with poisonous substances, such as phosphorous, lead, arsenic and copper, or under other adverse conditions, as in poorly lighted or poorly ventilated places like cellars, are among those so affected.

Vital force seems to be something given in more or less definite amount or degree and except for so living as to permit a full functioning of the vital force, little can be done to increase it. Many women who bear children in rapid succession have the vitality to endure the strain without harmful results; many others, in whom the reserve of vital force is limited, exhaust what they have after bearing several children, in consequence of which they enter the change of life while still young in years. This is not a disease condition, but is simply a matter of using up, in a few years, what might have lasted for many years.

**Influence of
Physical Con-
dition in
Menopause**

Atrophy is the anatomical basis; cessation of function the physiological basis of the menopause. Senile changes taking place in all the reproductive organs are the cause and effect of the menopause. The ovary atrophies, becomes harder and shrinks; the Graafian follicles disappear, and the ovary ceases to function. The Fallopian tubes become shorter and narrower, the lining is destroyed, and the canal often is obliterated. The uterus atrophies to rudimentary size and may be reduced to a hard body one-quarter its mature size; the canal in the cervix or throughout the organ may be obliterated, and collections of secretions may take place and cause retention tumors.

The vagina loses its elasticity and becomes shortened, narrowed and lined with scar-like tissue, while its entrance is contracted. The vulva also undergoes marked contraction and loses its elasticity; the mucous glands may be destroyed; the skin covering them becomes dry and scaly, and the hair on the mons veneris may turn gray. The glandular elements of the breasts are obliterated, general atrophy and shrinkage take place, and all function ceases. But often the breasts do not

1872 CESSATION OF MENSTRUATION

shrink, and even may become somewhat larger than before the menopause, through the deposition of fat in them. All functions peculiar to the organs of reproduction cease, the atrophic changes being known as senile atrophy.

The onset of the menstrual function is not normally a cause of physical distress or weakness in a woman, and neither should its cessation lead to physical disturbances. There are only two types of symptoms that normally belong to the menopause, and these should not occasion distress or alarm, as they are not pathological. They are merely the irregularity of menstrual flow preceding complete cessation and those minor variable general disturbances that appear, for the most part, after the cessation. In normal or fairly normal cases none of these is more than slight.

Symptoms of the Menopause

In health the menopause means only the decline and disappearance of the menstrual function, though often the woman may be somewhat capricious and emotional or have such slight perturbations as vasomotor flashes, perspiration, dizziness, sleepiness, and perhaps numbness of the extremities and even a tendency to faintness. But a great number of women do not pass through this period of their lives so easily. In different women symptoms appear in wide variety. Only the more common of these will be mentioned here.

The main symptom, of course, is the disappearance of the regular menstrual discharge. Sometimes this ceases abruptly, appearing one month and being absent the next, never to reappear. This may be natural, or the result of disease or intense emotion or removal of the ovaries. In the majority of women passing through the menopause irregularity of the monthly periods occurs. In some cases there is profuseness of menstruation after it has become irregular. This is an abnormal condition that calls for examination; it should not be neglected. The cause usually is tumors or other uterine disease. In other cases the life may be endangered by a slow, continuous drain, which also should be investigated. Except for progressive reduction of the loss of blood, no change in the condition of the flow should be neglected under the mistaken notion that it is a natural accompaniment of the menopause.

Flushing and other vasomotor disturbances are the next most common symptoms. These usually appear first toward

the end of the menopause. They come many times a day without warning. At one time they are hot flushes, at others pallor and chill. They may last only a moment but they are annoying and depressing. They appear in so many cases that they are not definitely classed as pathological. They may continue for two or three years, and occasionally for the remainder of life. The exact cause is not known.

Too many people take it for granted that almost any abnormal condition may develop at this time, *caused* by the menopause. But the fact is that, as a rule, the menopause merely precipitates conditions that would doubtless have developed sooner or later. If there is a predisposition to mental weakness, there may be mental disturbances at this time, sometimes of a very serious character. And often without predisposition there are such nervous and mental affections as irritability, apprehensiveness, change in disposition, hysteria and melancholia.

Abnormal
Symptoms
Not to Be
Neglected

In different cases there may be appearing and disappearing tender spots about the body; also backache, neuralgia, pains over the heart or the stomach, loss of power to think clearly, with restlessness, hesitancy, indecisiveness and moodiness. The sleep may be disturbed by distressing dreams and in some cases there is such fear of insanity or malignant disease that melancholia develops. Often there is a tendency to gloomy forebodings, the thoughts center about the woman herself and every pain or symptom is exaggerated by apprehensive imaginings.

There may be palpitation following light exertion or trifling emotion; or without apparent cause the heart may begin to beat forcibly. There may be a rush of blood to the head, with severe headache, hot and flushed cheeks, faintness or a choking sensation, a buzzing in the ears and a dancing blackness before the eyes. These may leave the woman with a dread that she is in danger of a stroke, or she may fear the immediate development of heart disease. She can be comforted with the assurance that the change never causes heart disease or a stroke.

It should not be forgotten that this period marks the beginning of retrogression, and it is only natural that more cases of malignant disease should develop at this time than earlier.

Malignancy in men appears with much greater frequency at the corresponding age than at any other. Hence the change of life itself cannot be held responsible for malignancy in any class of women.

One serious aspect of the menopause is that it may lead to the misinterpretation of symptoms that have nothing to do with it. This often happens in the case of pathological bleeding. Perhaps nine times in ten a recurring, excessive or continuous flow of blood from the uterus, when the change should be established, is due to cancer, and in a majority of the remaining cases the cause is fibroid tumor. Hence if there is not a gradual subsidence of the menstrual hemorrhages, with the flow growing less and less and occurring at longer intervals, a thorough examination is imperative.

It is true that the menopause often cures pelvic disease. This is explained by the fact that pathology is merely physiology modified by disease and that when natural atrophic changes terminate physiological processes they may at the same time terminate pathological processes. This accounts for the fact that many women who have suffered from chronic disease of the uterus or ovaries may, after the occurrence of the menopause, begin a long period of increased vigor and robust health.

If a woman lives a normal, healthful life, free from toxemia-producing habits or those inducing enervation, pelvic congestions and irritations, she should have no trouble during the change. Years of wrong living prior to the onset of the menopause may be paid for at this time.

So long as the symptoms are physiological no treatment is necessary. While paying proper attention to light but nourishing (vital) diet, bowel activity, fresh air, moderate exercise and other natural measures, minor symptoms should be ignored. There should not be too much rest, yet there should be fairly frequent complete relaxation. Eight hours of sleep at night and one hour in the afternoon are desirable, especially for women who work hard, who are neurasthenic or neurotic, or who have social obligations that use up large amounts of energy. Those who are fat should avoid the afternoon naps. There should be as much open-air activity as possible for the good of the exercise and of the fresh air and sun-

light, yet no particularly strenuous activities should be indulged in. Walking is the best of all such healthful activities. If there is insomnia the last meal should be light—fruits and vegetables alone (no meats), with only a small amount of liquid, and this meal should be eaten at least two hours before retiring.

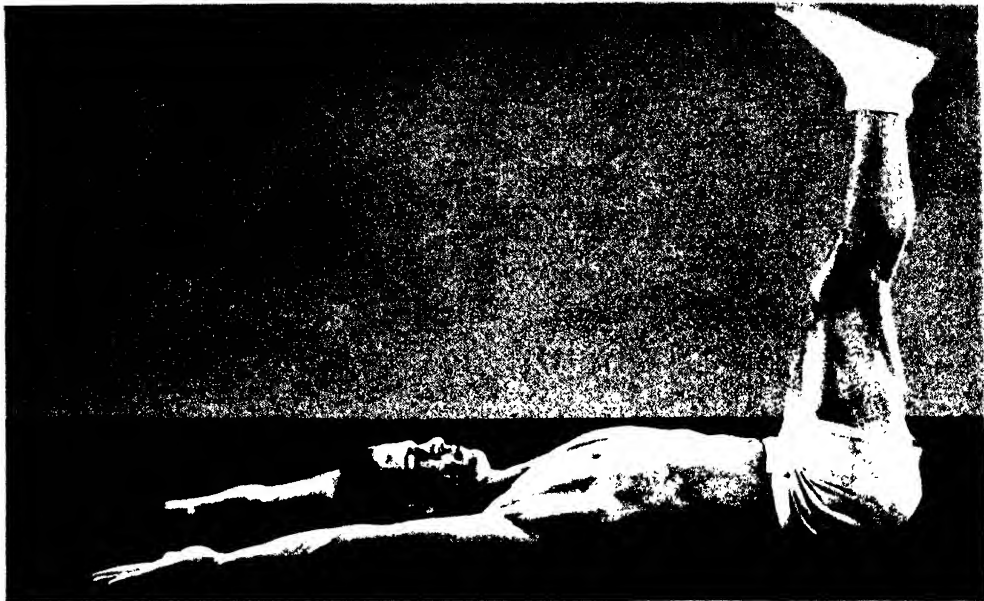
General warm baths, of short duration, are advisable for most women at this period. If the woman is accustomed to cold-water bathing she may complete the bath with a quick cold or cool application, or, if her condition is normal, she may take a cool morning bath.

Hot foot-baths will relieve pelvic congestion and congestive headaches. Pains anywhere may be relieved by hot compresses. Nervous irritations may be relieved by hot packs or compresses, extending the length of the spine. Profuse sweating may be relieved by sponging with hot salt water. General health measures and suitable diet, together with hot vaginal douches and perhaps bed-rest to control undue hemorrhages, will take care of most cases of anemia.

During any unusual or profuse bleeding it may be well to remain in bed until the flow ceases. The diet should be very light, such as fruit juices and vegetable broths, with perhaps hard toast and light vegetables. Cold applications over the lower abdomen may be of some benefit, but in case of fibroid or malignant tumor suppression of hemorrhage may cause an acceleration of tumor growth. The hot vaginal douche or irrigation will be of benefit in relieving tenderness and congestion of the uterus and ovaries and will tend to control an excessive flow not due to tumors, but the water must be hot—115 degrees or above.

SEXUAL HYGIENE.—Hygienic care of the sexual system is highly important. Remember that the sexual system comprises not only the genital organs and glands of reproduction, but also indirectly many of the endocrine or internal secretion glands; also that disturbance of any of these has its effect upon the general sexual organization. These parts are so interrelated and so delicate that even slight infractions of the laws of Nature are likely to be followed by serious conditions affecting the entire physical system, especially in the naturally more or less unstable individual. For instance, due to

**Keeping Sex
Health**



Several exercises helpful in virility building may be begun from position shown in upper photograph. The legs may be brought forward until the toes touch the floor at the finger-tips, this exercise being repeated as often as endurance will permit. Otherwise the body may be brought up to sitting position by bringing the heels down to touch the floor and the movement repeated with a sort of rocking motion with the hips serving as a sort of pivot.

Another variation of above movements, is to begin with the body either seated on the floor or at full length and to bring the finger-tips over to touch the toes, then resume original position, repeating the entire movement as often as possible. Another movement for virility building is to assume the position shown and to work the legs circularly as if pedaling a bicycle. The length of time this exercise is done will depend on the endurance developed.

neglect or lack of proper care, certain conditions of the vagina may in time affect the uterus and later the tubes and the ovaries.

The trouble may not stop there, for the poisons forming in this part may be carried by the blood to other parts of the body, causing general constitutional disturbances so serious as to make the sufferer a chronic invalid. This is not an exaggeration. Many thousands of women have become invalids through the neglect of slight primary abnormal conditions. So it behooves everyone, whether male or female, to study and follow the laws of Nature, and to use common sense in an effort to forestall those pathological conditions which often make life so painful and burdensome that to them it is not worth living.

In a general way there are three different sexual natures; (a) the hyperactive; (b) the normal; (c) the subnormal or underactive. The highly sexed person is likely to develop abnormal physical conditions through overactivity not only of the sexual organs but of the endocrines. In time this, not infrequently, will result in a general pathological condition, especially of the spinal cord and the brain.

The normally sexed person will be more rational in his sexual activities and probably will not be the victim of unnatural or abnormal conditions unless he allows himself to be influenced or excited through outside stimulants which ordinarily he would not seek.

The undersexed type is likely to be cold in nature, indifferent or averse to sexual matters and, from this cause alone, may develop conditions which may adversely affect the entire organism. The mental attitude is of the greatest importance in overcoming this and other abnormal sex conditions of any sort or nature.

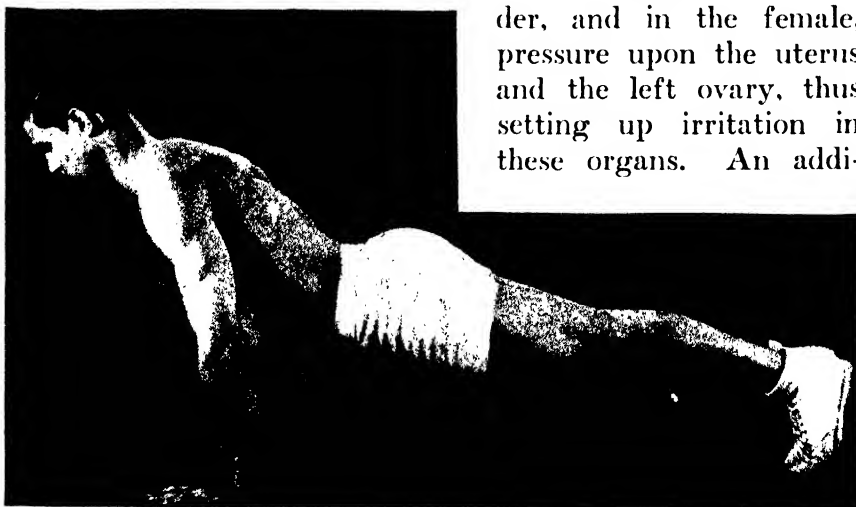
CLEANLINESS.—Cleanliness of the external genital tract is of paramount importance. In the male the external genitals and especially the glans penis and the skin immediately behind it, which in many instances is covered by the foreskin, must be kept at all times scrupulously clean. In this locality is a secretion called *smegma*, a greasy, cheese-like exudate with an unpleasant odor and a slightly irritating effect if allowed to remain. It collects around the corona or edge and the surface

Cleanliness

of the glans and also upon the inner surface of the prepuce. If allowed to remain it often sets up severe irritation, with redness and itching.

In the female is a secretion on the nymphæ and between these parts and the labia majora, which has the same effect as the smegma in the male. It causes irritation and itching and sometimes severe inflammation. Ordinary washing is all that is necessary to prevent discomfort in both cases.

Avoiding
Constipation



CONSTIPATION.—The avoidance of constipation is highly important both in the male and the female. Not only does chronic constipation tend to produce many general ills from the absorption of toxins, but the abnormal accumulation of fecal matter in the lower bowel may cause, in the male, pressure upon the prostate gland and the base of the bladder, and in the female, pressure upon the uterus and the left ovary, thus setting up irritation in these organs. An addi-

Take squatting position, placing the palms of the hands firmly on the floor, as illustrated in first photograph. From this position make a quick jump to the rear, with legs straight as shown in second photograph. Return to position, as in first photograph. Stand erect, and repeat exercise. Continue movement until slightly tired.

tional evil effect of constipation is the false stimulation of the generative system with an ultimate weakening effect. As a matter of fact we do not know how many cases of criminal assault upon young women can really be laid to constipation. If there be even a moderate tendency to this condition of costiveness it should be studied at once.

REGULAR ATTENTION TO THE BLADDER.—For similar reasons it is of the greatest importance to see that the bladder is emptied at regular intervals. Many children are prone to neglect the calls of Nature. They should be thoroughly instructed in the necessity of attending to themselves in regard to both the movements of the bowels and the passing of water. Eating and heavy drinking on going to bed should be avoided. By pressure upon the prostate gland, a full bladder has a great deal to do with the causation of erotic dreams and the accompanying nightly emissions of which young men often complain. In the same way it is likely to cause sexual excitement at other times. A full bladder in the female may cause crowding of the uterus backward or upward, eventually causing a permanent displacement.

CLOTHING.—The dress is an important matter in relation to general and sexual hygiene. Colds caught from wearing improper clothing may react badly by causing inflammatory conditions of the bladder, the abdomen, the uterus and the ovaries. Bladder inflammations may spread to the ureters and to the kidneys, sometimes with disastrous results.

Clothing and
Sex Health

Overdressing or wearing an excess of clothing is as bad as wearing too little. A safe rule is to wear no more clothing at any time than is absolutely necessary for bodily warmth and comfort. Too heavy bed-clothing, rooms too warm and all other unnatural influences are of a stimulating nature and are sometimes conducive to sex excitement.

Women should give special attention to the subjects of corsets and clothing generally. Clothing that constricts the body is not only directly injurious but it has the further unwholesome effect of inducing sexual excitement. A tight skirt-band or the weight of heavy clothing dragging downward from the waist will produce pressure upon the abdominal region and force the pelvic organs downward. Especially after marriage and as the young woman grows older, this compres-

sion of the waist-line and weight upon the internal organs is more conducive to prolapsus or falling of the uterus or to some other form of displacement of this organ. But before the evil is carried thus far the result is likely to be more or less irritation, heat and general inflammation of the female organs. Loosely fitting, cool and comfortable garments are as necessary for the sake of true sex health and hygiene as for health of the body in general.

BATHING.—Frequent baths for the effect upon the skin, circulation and the general nervous system are greatly to be recommended. Cold baths, especially cold sitz-baths, are valuable in quieting tendencies toward undue sexual excitement. Hot or warm baths, if taken at all, should always be followed by a cold or cool douche and a good rub.

EXERCISE is of vital importance for the building up of the sexual system and for maintaining it at its highest. By exercise one builds up not only the muscular system but improves the general condition of all the organs of the body; stimulates the circulation of the blood; causes the excreting organs to act more powerfully; increases depth of respiration; brings on natural and healthy perspiration, causing the elimination of toxins from the blood; and in every way strengthens the body as a whole. In this process the internal secretion glands are activated and made to function more perfectly and thus to react upon the glands and organs of sex.

Exercise, Diet
and Sex
Health

DIET is an important factor in the attainment and maintenance of a normal and vigorous sexual condition. This matter is discussed more fully under *Nutrition* and *Sex*. The modern diet, taken as a whole, is too stimulating. Much of the depravity and crime of today doubtless can be laid at the door of overstimulating foods and drink. Hot sauces, pepper, condiments, tea, coffee and alcoholic drinks tend to excite sexual passion. Meat also has a stimulating tendency in this direction. A vegetarian diet is indicated in cases of abnormal or chronic excitation.

CONTROLLING THE SEXUAL URGE.—An important matter of sexual hygiene is the normal and the abnormal use of the sexual function. It should be remembered that persons are differently sexed, so that what is normal in one may be abnormal in another. Some men and some women have more sexual

vitality than others and consequently are able to exercise, with impunity, the sexual function more frequently than others. Therefore, no definite rule can be laid down as to the frequency with which the sexual relation may be indulged in. Each person must determine this for himself. It must not be forgotten, however, that overindulgence has a serious effect upon the general health. On the other hand, serious disturbances may also result from repression of the sexual desires when right and proper to indulge them. This reacts especially upon the nervous system, producing general debility, hysteria, nervous depression and other neurotic conditions.

It has been said that sexual indulgence may be controlled.

Controlling
the Sex Urge



Lying on side with arm beneath body, as in upper photograph, raise the hips so that the body is arched, with hips clear of the floor. Repeat as many times as endurance permits.

Lying on side in position shown in second photograph, but with legs together, head supported by hand and other hand on hip, with leg extended rigidly, raise foot as shown. Perform the exercise from a dozen to twenty times, then lie on the other side and repeat with the other leg the same number of times.

1882 CONSERVING VITAL FORCE

A cooling, non-flesh diet, cold baths, exercise, outdoor sports, long walks, and various other health-building measures are often advised as an aid in controlling the sexual impulse. It cannot be said that any of these things is certain to bring about lessening of sexual desire; but it is true that, by a satisfactory diet and other means of acquiring clean, pure blood and improving the general health, virility will be increased through increased health and vitality. This is likely to prove true in the majority of cases. The essential point is that in living this kind of a life overstimulation and abnormal excitement, which have done and are doing so much harm in the world, will be avoided. Instead of a weakened nervous system and an uncontrollable sexual impulse, the man or the woman who lives a physically rational life will acquire sound nerves and strong sex power well ordered and under control.

CONSERVATION OF VITAL FORCE.—The keynote of sexual hygiene is the conservation of energy or vital force. In this direction waste or dissipation is more disastrous than from any other common form of dissipation.

All excesses and perversions are devitalizing and injurious. Many serious chronic diseases, may be traced directly to these various vices. In many cases they lay the foundation for pulmonary tuberculosis, heart disease or some other organic disorder that finally ends fatally.

The seminal fluid is described as the most concentrated secretion of the human body, one part being equal to many parts of pure blood. Lack of seminal accumulation induces listlessness, lack of animation and vivacity. Intelligent athletes understand the relation between their strength and endurance and the conservation of sex energy.

Sex hygiene strongly indicates that under no circumstances should the sexual act occur if one is debilitated, suffering from any physical weakness, fatigue or unusual mental strain. Languor or depression following the act is warning against indulgence. Certain chronic diseases, such as pulmonary tuberculosis, naturally would contraindicate indulgence. It may be stated here that the single marriage bed is antagonistic to sex hygiene. Whenever possible it should be eliminated. In many cases it would be better if husband and wife occupied separate rooms.

PENALTIES OF PROMISCUITY 1883

In considering the hygiene of male and female sexual organs it becomes necessary to speak of the danger of contracting venereal diseases from promiscuous intercourse. Ideally, a man and a woman who are not married are supposed not to indulge in sexual intercourse. Unhappily, we find both men and women who fail to live up to this ideal. They are not all single men and women, by any means. While happy marriage and the living of a monogamous life should be the aim and the ambition of all good men and women, many stray from the straight and narrow path, and by their conduct expose themselves to venereal infection.

Danger of
Venereal
Disease

If a man or a woman indulges promiscuously there is especial danger of infection. Infection with gonorrhea in men predisposes to urethral stricture, chronic urethritis, enlarged and chronically inflamed prostate gland, with all of its discomforts and dangers, orchitis, epididymitis, varicocele, inflammation of the bladder, venereal warts, impotence and other serious conditions. In women it is likely to lead to purulent inflammation and abscess of the Fallopian tubes, chronic inflammation of the ovaries, abscess of the glands of Bartholin, chronic inflammation of the uterus and of the vagina, inflammation of the bladder, the formation of venereal warts upon the vulva, a tendency to abortion, and sterility.

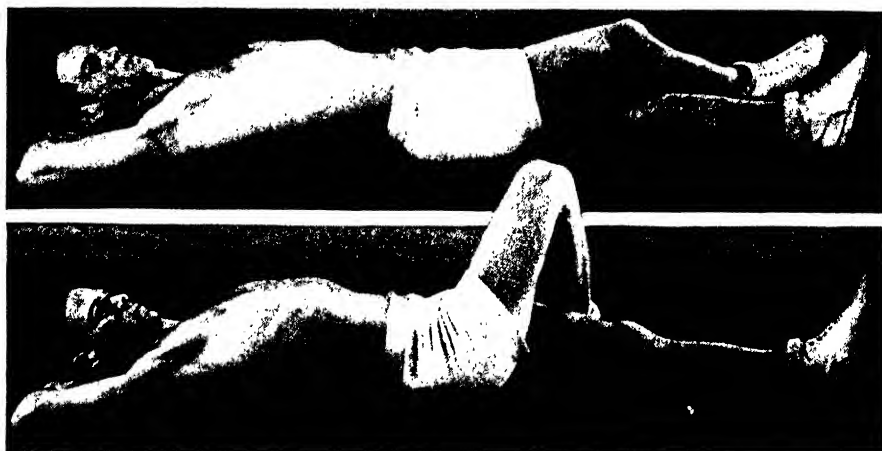
But it is not gonorrhea alone with which the man or the woman who indulges in promiscuous or unclean intercourse is likely to become infected. One may contract chancroids or soft chancres, which usually are accompanied with suppuration of the glands of the groin (bubo). Or, again, one may easily contract syphilis, with its initial lesion, chancre, and inflammatory swelling of the inguinal glands; its secondary lesions of mucous patches and roseola; and the disfiguring tertiary symptoms, with breaking down of the tissues, skin, flesh, bones and nerves, and with the development in a very large proportion of cases of paresis and insanity, with many premature deaths.

The man or the woman who realizes to the full what these infections may produce and how one's life may be not only ruined but often forfeited, should heed the warning and remain chaste. But since many people of both sexes find this almost an impossibility, certain measures have been recom-

mended by physicians whereby those who insist upon indulging promiscuously may lessen the danger of infection from such intercourse. These prophylactic measures consist, for men, in thorough washing of the organ with an antiseptic solution immediately after intercourse, then as soon as possible in applying an ointment usually containing some mercurial compound, to the surface of the glans and the body of the penis, and lastly in taking a urethral injection of an antiseptic solution, such as protargol, argyrol, or potassium permanganate. In women the washing of the external parts; thorough douching with an antiseptic solution, such as bichloride of mercury and the smearing of the mucous membrane of the vagina with an antiseptic ointment or the introduction of a vaginal suppository containing some antiseptic—are recommended.

Venereal Prophylaxis

But prophylactics are not always to be depended upon, for through some slight abrasion in the skin or mucous membrane of the genitals infection may take place before the application of these preventive measures; so again no application is infallible. Therefore, while prophylaxis may be of value in many cases it cannot be entirely trusted. Continence is the only safe and sane prophylaxis.



Lying on back, bring right leg with straight knee, over left leg, as shown in upper photograph. Alternate this movement by bringing left leg over right leg in same manner. Repeat a dozen to twenty times.

Beginning in same position, swing right leg with bent knee, over left leg, bringing foot as far up left thigh as possible. Repeat same movement using the left leg to cross right leg in the same fashion. Repeat from a dozen to twenty times.

SEXUAL DISEASES.—For symptoms and treatment of venereal diseases refer to *Chancre*, *Chancroid*, *Gonorrhea*, and *Syphilis*, Volumes VII and VIII. Sex Disorders

In the male, sexual diseases assume definite forms and may be classified as follows:

1. Gonorrhea.
2. Stricture of the urethra of gonorrheal origin.
3. Papillomata or venereal warts as a result of attacks of gonorrhea.
4. Chancroid or soft chancre, a local venereal infection.
5. Chancroidal bubo.
6. Chancre, called hard chancre in contradistinction to soft chancre. It is the initial lesion of syphilis. In addition to appearing upon the sexual organs as a result of sexual contact, it may appear upon the lips, tongue, tonsils, etc., as an indirect infection from drinking from a cup which an infected person has used, from blowing into a horn which has been blown into by an infected person, etc. In these ways the disease may be innocently acquired, provided the person from whom the infection comes is suffering from the disease in the secondary stage or stage of mucous patches.

7. Syphilis. This is a blood infection which usually develops in three separate and distinct stages, to wit:

The Primary Stage. Chancre on the penis, or sometimes on other portions of the body. Swelling of inguinal glands.

The Secondary Stage. This is the stage of roseola, a light measles-like eruption, mucous patches in the mouth or upon the genitals and around the anus.

The Tertiary Stage. In this stage there is likely to be degeneration, or necrosis of the skin, bones, mucous membranes and nerves, followed frequently by general paresis, locomotor ataxia or other degenerative nerve conditions.

Bubo or infection of the inguinal glands may follow infection of chancroid or of chancre. Frequently it causes breaking down of the gland, with suppuration and discharge of pus. The suppurating form is generally found in bubo from chancroidal infection.

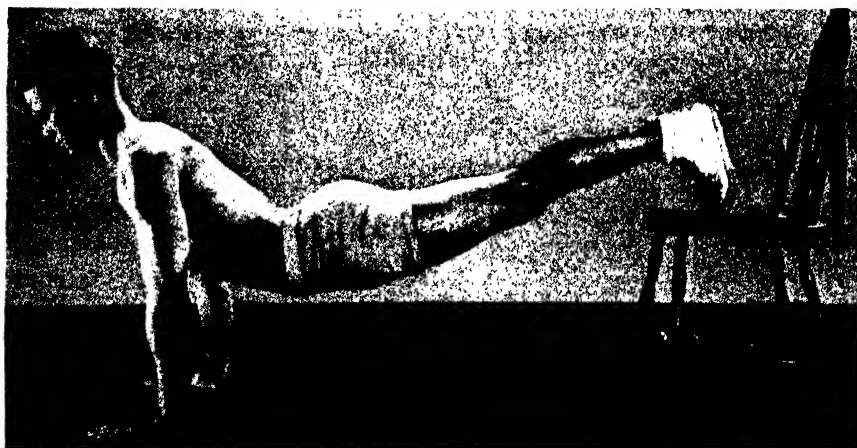
All of these diseases, with the possible exception of stricture of the urethra, may attack the female as well as the male.

There are disorders which belong strictly to men, because

**Male Sex
Derangements**

of their peculiarity of sexual structure. In spite of the fact that the male gonads, or testicles and penis, are external and provided with comparatively scant protection, accidents to them are relatively rare, and there are few affections of the penis. The testicles are not commonly attacked by the different degenerations to which they are liable. Epididymitis, relatively common, usually results from gonorrheal infection. While this sometimes causes sterility, the sufferer, in general, is normal in potency and fertility. Stricture of the urethra is common and may cause bladder disturbance, which may lead to complete alteration of the bladder wall, or cause or aggravate a prostatic hypertrophy.

Though a man may make considerable ado over a more or



With body resting on chest push upward as indicated in second photograph. A variation of this exercise can be taken by beginning as shown in second photograph, keeping the arms rigid and bending the central portion of the body downward as far as possible, and next raising the hips as high as possible. Repeat the movement until slightly fatigued.

less insignificant sexual disorder, including sexual neurasthenia, which is a disorder peculiar to men, it is certain that the sexual troubles of man are trivial in comparison with those of woman. How much of this suffering of woman is natural and how much is abnormal is difficult to determine. The fact that the adoption of a rational diet, prevention of constipation and the indulgence in exercise are sufficient to correct most of the ills peculiar to woman tends to prove that many of these afflictions are due to harmful habits of life. This is further indicated by the comparative, or absolute, freedom from disturbances "peculiar to the sex" which has been observed among primitive women.

VIRILITY AND SEX HEALTH.—Virility is a physical asset beyond valuation. Vigorous manhood may be inherited and in youth one may enjoy to the full the exaltation felt with superb virility without giving much serious thought to the matter. But if this virility is to persist into middle life or even beyond that period one must have been moderate enough in exercising his powers so that a diminution or an early loss of them has not occurred. Virility

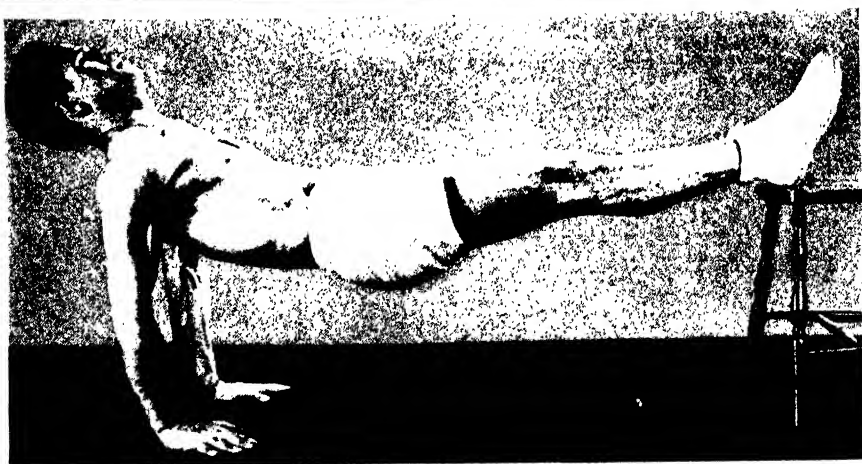
Virile manhood is attained by some men through good birth; others, less fortunate, have been compelled to develop these valuable powers. But no matter how it comes, the importance of the knowledge associated with the development and maintenance of virile manhood cannot be too strongly emphasized. Every man should know and should follow the rules of health which favor the building of a high degree of virility, and yet there is no phase of life in which knowledge is more sadly needed.

In speaking of the development of virility the subject must be approached in the proper way. Many people consider any discussion of sex and sexual matters as unclean. It is not. "To the pure in heart all things are pure." To the prude the most sacred facts of life are impure. Nothing is inherently impure in sex, for sex life is one of the great forces of Nature; it is the plan by means of which life is perpetuated upon the earth; it is therefore sacred—nothing is more so. But while there is nothing impure in sex *per se*, there is in the abuse of sex. Indecency is simply a question of behavior and cannot be attributed to any part or organ of the body. It lies in the mind and not in the body. The sex instinct is the source of all

that is sweet, beautiful and ennobling in the love of man and woman. Only when it is debased does it become vulgar and unclean.

Well Rounded
Sex Nature

To be strongly sexed means to be thoroughly alive, vital and vigorous. It does not mean mere localized strength in the reproductive organs, for sex is related to the entire organism, the mind as well as the body. For sexuality is not only a physical quality; it is expressed as much in the mind and in the



These two photographs illustrate a useful movement in constitutional and virility upbuilding. From the position shown in the first photograph, with the feet firmly supported on an object of suitable height, the hips are elevated to assume the horizontal position shown in the lower photograph. At first it will be difficult to perform this movement beyond a few attempts. Persistence should be effective in developing endurance and in greatly increasing the number of times the movement can be performed before fatigue ensues.

spirit as in the body. The importance of the sexual glands is due not alone to special functions, but also to internal secretions which are of vast importance to the entire bodily economy.

The importance of these glands in relation to general strength and vitality of mind and body is best demonstrated by the condition of those individuals who in their childhood have been deprived of them. The removal of the testicles, or castration, as practiced in some countries in order to produce what are called eunuchs, causes very marked changes in these individuals. Upon reaching adult age they fail to develop many of the secondary sexual characteristics. The voice remains high-pitched and childish in character, the body is undeveloped, the beard does not grow, the muscles are flabby and the nerves weak. The mind does not develop but remains childishly simple. Ambition and courage, as well as mental concentration, are lacking. There are physical weakness and lack of vital resistance, hence the life of the individual is shortened.

Effects of
Castration

The changes produced by castration may also be produced, to a certain degree, in persons who in the beginning were perfectly normal and virile, by sexual vices. Through such abuse their virility may be impaired or even lost, and they may suffer severely both mentally and physically. It is necessary, therefore, to live a clean and normal life in order to maintain the health of the sexual glands and preserve the mental and physical powers that go with them. Although the rule applies throughout one's entire adult life, it is more important in youth than at any other period. One cannot violate the laws of Nature and escape punishment. It is necessary to reach maturity with the powers unimpaired and thereafter to avoid abuses, in order to attain and retain the mental alertness and energy, the courage, the self-confidence, the ambition and the physical stamina that characterize true manhood, but which often fail to outlast youth.

CESSATION OF SEX LIFE.—The question of the time at which sex life ends is important. Many women approaching change of life feel that as soon as the menopause (page 1869) has occurred they will lose all sexual desire and can no longer please or gratify their husbands' sex inclinations or receive

such pleasure themselves. This causes much unhappiness, for a woman who knows her husband is still virile may feel that he may lose his affection for her or will turn elsewhere for sex gratification. Under the circumstances, nothing could be more unfortunate than this. If women understood the matter better they would be saved much mental suffering. The worthy husband loves his wife as much at this period of her life, if not more than ever. He knows her fears and anxieties, he knows that at this particular time worries will be detrimental to her, he remembers the years of happiness he has had with her, the children she has borne to him, and he will be sweeter and more lover-like because of all this.

Decline of
Female Sex
Life

Often the sexual life does not terminate with the menopause. It is true that after the menopause women are no longer able to conceive, but it is just as true that this does not mean that they will lose at once their sex desire, nor the gratification to be derived from sexual intercourse. The mere loss of the procreating power does not mean the immediate loss of desire and the inability properly and satisfactorily to conclude the sex act. In fact, many women say they feel even more gratification for some little time after the menopause than they did before that event. To a certain degree this may be a mental condition, for before the change of life conception may have been feared, while after this change, the fear having passed, there is no remaining anxiety as to a possible pregnancy. Hence the reported increased sexual gratification.

Again, most women, either through ignorance or because of stories others tell, have a dread of the menopause because of what they think may happen to them mentally or physically at this period—cancer, insanity, obesity, general loss of health, and other conditions. For these reasons they fear the approach of the change. These conditions are unnecessary. A normal woman should pass through this critical period and emerge physically and mentally in good condition.

If a woman lives a normal life, taking proper care of her body and general health, avoiding sexual and other excesses, regulating her diet according to her requirements, and getting away from the fear of the effects and after-effects of the menopause, she will probably have many more years of happiness, and will grow old gracefully.

Of course there are certain symptoms, principally nervous in character as explained in the succeeding pages, from which almost all women suffer to a greater or less extent; but these need cause no alarm. Most women's sufferings are anticipatory. Life after the menopause should not be appreciably different from life before it. It is sure to be so if one lives right and thinks right.

As to the termination of sex life in men it is difficult to make any positive statements. It varies greatly in different men. Much, of course, depends upon the inherent vigor and virility of the individual man, and his previous mode of life—not only as to general hygiene but also as to moderation or excess in sexual indulgence. The writer has known men in their seventies who have preserved their vigor and been the fathers of children. On the other hand, he has known men in the forties or even younger, who were sexually impotent. There is no question that normal men pass through a period which corresponds in some degree with the change of life in women.

The sex glands begin to fail, to grow weak in function; the other endocrines also show some decline; the man gradually loses his masculinity, his aggressiveness, his general ability to command and to control the matters of home and business life, he becomes more or less irritable and querulous, his voice loses its depth of tone and resonance and becomes higher-pitched, he

**Male Sex Life
Longer Than
Female**



Taking position to support weight of body on shoulders, with legs extended upright, bring down the foot with smart action to touch the floor back of head. Raise leg and bring down opposite leg to touch floor with foot in similar fashion. Repeat exercise a dozen times or more, as endurance increases.

hesitates about making decisions and his judgment may become somewhat impaired.

Symptoms of
Waning Male
Virility

In the male, the first indication of loss of virility usually is inability to maintain sufficient penile erection for the performance of the sexual act. This condition comes, as a rule, before the ability to experience the orgasm is lost. About the only thing that can be said with assurance about the decline of sexual capacity in man is that it usually begins much later than it does in woman, for ovulation ceases at a much earlier period than does the function of the testes. In many men, also, the change is considerably more gradual than in woman.

In both men and women there is gradual atrophy of the sex glands, due to loss of function and deterioration. However, it may be said that men do not show their ages as early as do women. It is also true that many women, at the menopause, pass through a much more severe crisis than do any men.

NUTRITION AND SEX.—The effect of nutrition upon sex and personality is marked, for what and how much one eats largely influences the development or the loss of sex appetite and instinct, and thus also the development or the disappearance of the sex lure or personality. Proper eating makes for good health, vigor, strength, mental and physical activity, and induces vivacity, beauty, grace, and attractiveness, all of which tend to increase the sex appeal.

The Importance of
Food

Men and women are what they are largely because of the food they eat, the exercise they take, the amount of sleep they obtain and their mode of living generally. And of all these things none is more important than food. The various phenomena of life obviously cannot go on without building material to keep the body in repair, and power to run it. Food and drink supply these elements, and the body becomes strong and able, or weak and incompetent, largely in accordance with their quality and quantity. And no system of the body responds more promptly to their influence than does that of sex.

Diet and
Sexuality

Happiness, vigor, activity, mentality, morality, and the general welfare of the individual largely depend upon sex. It therefore behooves one to keep himself and his sex organization always in the most vigorous condition possible. This can be accomplished largely by means of proper diet. It is well known that the use of stimulating foods, as well as eating

too much food, is productive of an unnatural stimulation of the sex nature, this resulting in a similarly unnatural degree of sex desire.

Aside from the possible harmful effects of such indulgence upon the body in general, these vicious gastronomic habits may and, indeed, do cause an increase in vice, sex crimes and social disease. On the other hand, it is equally well known that a natural, non-stimulating vegetable and fruit diet, with a reduction or elimination of meat, has just the opposite effect upon the sex system, and therefore such a diet has a marked influence in controlling sex and in making for a clean, fine, moral life.

Control of sex does not mean loss of virility or of potency. On the contrary, it means greater virility and potency. In order, therefore, to be well but normally sexed, and able to create clean, strong and healthy offspring, one must be moderate in his eating habits and must also choose the special kinds of food which will strengthen and build up those portions of the body that direct and control the sex instincts. The ill health resulting from improper food affects the general endocrine system, including the gonads, causing it to become less active functionally, as well as affecting it structurally and the weakened endocrines still further depreciate the body and sexual system.

Overeating, or the eating of improper or improperly prepared foods, produces toxemic conditions throughout the body. All food after being digested and prepared for absorption in the digestive tract, is taken into the general circulation and carried by the blood to the tissues. Now if too much nutritive material is taken up by the blood it acts as a poison. The blood loses its chemical balance, with a further development of toxemia, which in time is sure to bring about disastrous results.

The entire organism feels the effect of this condition and, naturally, the endocrines also suffer. As these have such a marked influence upon the sex instincts and characteristics there is a deterioration or breaking down of the normal endocrine balance and of the entire sexual system. Thus while the primary effect of overeating may be that of stimulating the sex apparatus, the ultimate result will be a breaking down

**Sex Person-
ality and
Diet**

of the mechanism through general ill health. In one of his works, Dr. Henry R. Harrower says: "Toxic conditions of all kinds produce a strain on the endocrines, more especially the detoxifying glands; namely, the liver, thyroid, parathyroids and adrenals."

Some of these toxins are of alimentary origin, while others may be due to the absorption of bacterial protein products from infection. Harrower again says in his little work on *Endocrine Diagnosis Charts*: "The nature of the diet is very important, and deprivation of food or food deficiency, not only in its caloric content but in the essential food factors, will injure the endocrine system. This is particularly true of the vitamins, which many are beginning to believe are active largely through the endocrine glands."

Food and
Sex Life

The effect of food upon the sex life was satisfactorily demonstrated by a series of experiments made during the World War. A number of fine, healthy men, well educated in sex matters and all leading clean, moral lives, were made the subjects of the experiments, so their statements could be received without question.

The experiments were undertaken, not for the purpose of discovering anything relative to sex, but to determine the effect upon these men of a restricted diet. So the disclosures made were unexpected.



The effective exercise of bringing the feet overhead to touch the floor can be varied to advantage by using some such weight as the pillow here shown.

One of the men volunteered the statement that since restricted to diet upon which he had been placed a loss of all sex desire had been experienced. When each of the men in the group was then separately and privately interviewed a great unanimity of opinion was found to exist. Twelve men had submitted to the series of experiments and all twelve reported a general decrease of sex desire. These experiments, therefore, showed that the sex life of the individual is unquestionably influenced greatly by the eating habits.

Sexuality can be unduly stimulated by excessive eating and can be diminished by abstemious eating. Do not get the impression, however, that the men lost their sex appetite because they lived upon a restricted diet. It was not that alone. It was due also to the fact that they were deprived of *certain food elements*. Those men were on a regular diet of ordinary foods, but the quantity was reduced 50 per cent. If, therefore, sex virility is due to certain food elements rather than to the amount of food eaten and if these certain elements are not any too plentiful in the ordinary conventional diet, it would seem that this group of men was taking in too small a quantity of them to produce sex stimulation.

All this, possibly, is of only academic interest. But it is important to know what kind of foods to eat in order to keep up the general nutrition and, at the same time, not to overstimulate the sex glands, nor yet to allow the sex instinct to become too much decreased, but to keep the sex system in a normal, healthy condition.

Experiments in biology have shown the existence of certain food essentials to which has been given the name of *vitamins*. These exist in foods in very small quantities, but they have a remarkable effect upon the general nutrition and the general health of the individual. It is unnecessary here to go into the discussion of vitamins, as the subject is thoroughly treated in Volume II. It is proper, however, to mention the discovery of one vitamin which has been named the *fertility vitamin*. Scientists claim that even if all of the other vitamins, as well as minerals, are supplied to the body, fertility is still impossible without the fertility vitamin. It is present, however, in many natural foods. At present it is not known just how practical this discovery is likely to prove. But like the discovery of

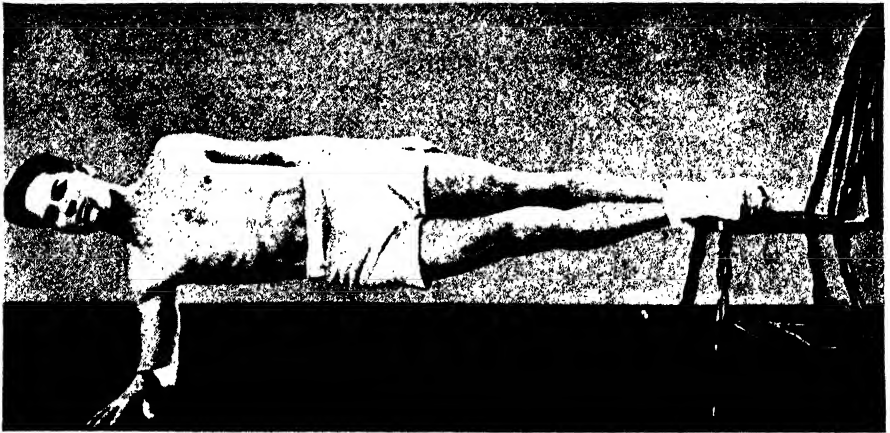
the other vitamins, it has greatly stimulated all phases of nutritional investigation.

There is hardly a doubt that the other and better known vitamins present in foods have at least some effect upon the sex system through their contribution to the general health and strength of the body. A diet of foods rich in growth- and vitality-producing elements should be capable of giving added fertility. Such foods as milk, eggs, greens, undenatured grains, yeast, cod-liver oil, liver and brains possibly would yield fertility elements in greater percentage (in proportion to the food consumed), than would the conventional diet.

Of course, one must understand that fertility, or the power to procreate, does not necessarily presuppose great sex desire. This is by no means the case. Often the man with a moderate sex urge is much more virile than the oversexed man. In fact, excessive sex desire is frequently present in individuals who are sterile.

There is probably no question that overeating stimulates sex desire, and that the eating of certain classes of foods will also have an influence upon it. This fact seems to be recognized by some persons who, in order to stir up and stimulate the sex nature, eat large quantities of highly stimulating, highly seasoned foods. But, leaving out the moral aspect of the matter, this is a decidedly wrong and unhygienic practice.

Sex Crimes
and Diet



Supporting the body by placing feet on chair and elbow on floor, elevate and lower the hips as often as endurance permits. This movement cannot be done rapidly; the number of times it may be repeated will depend upon increasing endurance and strength.

Gourmandizing on overstimulating foods will in the end simply defeat the purpose for which they are taken. Overeating causes one to live at a high pressure, under tension, and will, of course, shorten one's life. The same thing applies to one's sex life. Continual overstimulating of the sex system burns the fire out prematurely.

It is apparently true that the diet of today is somewhat too stimulating. If men could revert to the simple and wholesome diet of primitive life it would be much to their advantage. Without doubt much of the depravity and many of the crimes against the person common today come from distorted, overstimulated sex instincts. These would be almost unknown if the human race would reduce its present diet at least one-half in quantity and restrict it to wholesome, digestible and health- and strength-building foods.

Make a real man or woman of yourself; a vital but controlled and virile man; a responsive, modest, womanly woman, possessing all of the attributes and sex attraction which Nature intended you to have, but to a natural and controlled degree. Live as you should, eat as you should, exercise as you should, and your reward will be great.

PROS AND CONS OF BIRTH CONTROL

Section 8

INHUMAN MATERNITY LAWS.—It is difficult to grasp the point of view of any legislative body that would punish intelligence with convict stripes and reward decency and progress with the rock-pile; but the fact is that on the statute books of this country is a law which makes it a criminal act, punishable by a heavy fine and long imprisonment with hard labor, for anyone, even a doctor, to give advice or assistance tending to prevent conception.

Birth Control
Laws

Perhaps in no other way has modern man shown such stupidity and inhumanity as in imposing unrestricted maternity upon the poor, helpless women of all classes--except the rich. Everyone knows that well-to-do people consciously limit the number of their children. They can purchase the immunity denied the less fortunate. In spite of the law they are able to buy information respecting the harmless and almost completely effective methods of contraception. So, in this topsy-turvy world, the rich, who can afford many children, have few, and the poor, who can afford few, have many.

Because the rich have this information, because they can afford the small expense of the preventives and because they have the foresight to perceive the advantage of a reasonably restricted number of children they limit their families. Only desired children are permitted to be born, children for whom there is an assured place. If all for whom there is inadequate provision were stopped before they started, it would go further to solve the problems of the reformer, the physician, the economist and the diplomat than any ten measures that the most astute philosopher could propose.

If the impoverished mothers of the world realized that certain knowledge would enable them to avoid bringing unwanted children into a life of wretchedness, poverty, sickness and crime, they would storm the capitols to demand relief from such burdens, imposed upon them by the stupidity of law-making men.

It is too much to hope that all women will reach this state of mind in the near future, however, because the "custom that doth make cowards of us all" rests too heavily upon them; the fear implanted in their minds by prudery and hypocrisy is still too strong and compelling; the carelessness induced by their helplessness is too deeply ingrained; the pall of ignorance that enshrouds them is too thick and murky.

THE GOSPEL OF VOLUNTARY MOTHERHOOD.—But there are signs of an awakening. Everywhere courageous women, facing ridicule, persecution and even imprisonment, are spreading the gospel that motherhood should be voluntary and that children have a right to be well born and well cared for. They are teaching poor mothers the things that rich mothers have known for many years, inculcating the beneficent and rational idea that *quality*, not *quantity* of children is what counts. Splendid women—Margaret Sanger, Dr. Marie Stopes, Mary Heaton Vorse, Mrs. Mary Ware Dennett and many others—have braved the wrath of the law and told mothers how to prevent bearing more children than they want. Some women are even furnishing these mothers with the means of contraception.

Changing
Attitude to-
ward Birth
Control

The mothers are spreading the knowledge among their neighbors, telling a tale of new hope, of relief from crushing responsibilities, from life-shortening labors and lactations—seeing a new woman the mother only of children she is ready to welcome into the world.

Women are passing the word to sister women that conception and pregnancy are not inevitable; that the love of their men need not be penalized by unwelcome children and broken health. They are discussing, in ever-increasing numbers, things that doctors and nurses have long discussed with wealthy parents, thus lighting a torch of insurrection against the laws that now disgrace the statute books and the injustice which forces unwilling maternity upon them.

Thinking men and women have come to the conclusion that this country has long enough lagged behind some of the advanced nations of Europe as to the removal of restrictions to rational birth control, and are trying to legalize the right of physicians and of societies like the Neomalthusian League of Holland to disseminate information for the prevention of con-

1900 CONTRACEPTION VS. ABORTION

ception. For nearly forty years this League has furnished to poor people free instruction, through physicians and visiting nurses, as to the best and safest means of preventing conception. The results of its work supply evidence of the success of the practice. Figures taken from Holland government statistics and from the Official Year Book of Holland show that since the institution of birth control the people have markedly improved in health, their stature has increased and their lives have been lengthened. They also show that the Dutch have the lowest mortality rate of any nation in the world; that illegitimate births have decreased; that poverty, various forms of degeneracy, and sexual immorality are decidedly on the wane. While birth control cannot be given all the credit for these improvements, it is credited with being an important factor.

Arguments for Birth Control

ADVANTAGES OF BIRTH CONTROL.—The many advantages in rational birth control should not be overlooked. Thousands of young men who fear the slavery of the large and quickly growing family would marry if harmless means of contraception were universally available. Their marriage during this most virile period of their lives would greatly reduce the likelihood of their contracting venereal diseases and would thus prevent much of the infection of wives, who today furnish about 80 per cent. of the subjects for gynecological operations. For obvious reasons, early marriage would also diminish prostitution, psychopathic sexual relations and neurotic conditions which result from repressions due to abstinence or continence.

The vitality of mothers would be conserved by bearing fewer children, and the children born would, in consequence, be better equipped physically and mentally for life. Premature aging would be prevented and women would take time for mental culture and the thousand and one things that make life really worth while. Women affected with tuberculosis, nephritis, heart disease, diabetes, or by abnormal pelvic conditions, would not be doomed to death by undesired pregnancies and the crime of abortion with the suffering that frequently results from it would be almost wiped out.

CONTRACEPTION AND ABORTION CONFUSED.—Because the law persists in confusing contraception with abortion, many otherwise well-informed people are misled. These two things have absolutely nothing in common—except perhaps their ulti-



PHOTOGRAPH BY EWING GALLOWAY

PLATE 60. This Eskimo family, composed of parents and six children (including the youngster unwilling to face the camera), is not of unusual size for this race.

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mate intention. Here is a simile that may help to clear one's mind on the subject: You object to a certain stranger and do not wish to entertain him in your home. You lock the doors and refuse to let him in—you use contraception; or, you let him in and murder him (at the imminent risk of losing your own life at the same time)—you use abortion. Is this clear? If it is, don't ever again confuse contraception with abortion. No one is more vociferous and active in fighting the repeal of laws against birth control than the professional abortionist. He sees that his lucrative occupation, now practiced illegally and under cover, would be gone if giving contraceptive information were legalized.

Contraception
Not Abortion

The present vogue of childlessness and families of one or two children is a condition largely brought about by the rather recent discovery of effective methods of birth control, and also by the new freedom which makes it possible for women to obtain a higher education and enter masculine professions and business. Women with this new knowledge and new freedom have rushed into the new life and renounced motherhood or limited it to the one-chick brood. Certain short-sighted men have encouraged them in this. But it is against the real instincts of human nature and the real happiness of women. With the next swing of the pendulum, there possibly may be a change in the ideals of young people. Young women may frankly anticipate motherhood and prepare themselves physically and mentally for it.

In the near future young women who are prepared in mind and body for motherhood will become the ideal of the serious-minded, intelligent and successful young men. The general prosperity of the country will in time tend to bring this about, because men will not have to give so much time to the pursuit of wealth and will not feel obliged, as they so often do now, to sacrifice or postpone the real and true joys of marriage and parenthood.

Though some readers may think it inconsistent to argue for both birth control and large families, the universal knowledge of birth control does not necessarily mean small families for everybody. It means, rather, intelligent control of the family size in all cases. Obviously the people best fitted, physically, mentally and financially, to bring children into the world



PHOTOGRAPH KEYSTONE VIEW

Practically every adult woman in the Orient, has one or more babies. Most women who work in factories bring their babies to nurse and care for them between tasks. Here two Japanese babies whose mothers work in a silk factory are shown among the silk cocoons.

**The Right to
Be Well Born**

and rear them under healthful conditions should have large families, while those in opposite circumstances should have few children or none. Today, the conditions are almost exactly reversed; they could not be much worse. It is impossible by legislation to force people who should have children into having them, but it is possible to repeal laws that foster overproduction by those least fitted to produce, care for and educate children.

Those who favor the present laws give no sane reasons for doing so. These laws arose in a previous age, when the population was kept down by war, famine, pestilence, and a huge infant mortality. Now that, with our growing enlightenment, the first three of these scourges no longer take their former toll and the mortality of infants is steadily decreasing, a retention of the old system of unrestricted births for all the population is an obvious absurdity.

If each woman were to rear just two children the population would remain stationary; but if each woman were to rear three children the population in a century would increase from

100,000,000 to 337,000,000. This is too fast an increase. As nearly as can be judged, the future good of America would be best served if the average number of children should not fall below two nor be raised above three. The only civilization that could exist with unlimited child-bearing is that which has existed in the past and that still exists in Asia—a civilization in which the population is controlled only by sterility, abortion, infanticide, infant mortality, famine, pestilence and war.

Perhaps celibacy and continence in marriage should be included in the less horrible of checks to population without contraception, but it is doubtful if any good purpose could be served if a large fraction of the population lived in these unnatural states.

Considering all the facts, it seems that the practice of contraception, by a large portion of the population for a large part of married life, is a necessary condition to any civilized society that has eliminated the murderous methods by which population has been kept down during the past history of the world. The only debatable points are: Who shall practice birth control, and what means are most effective and least likely to be injurious. Today the subject cannot be fully discussed in print since it is unlawful to publish any direct information about methods of contraception. So long as present laws exist this knowledge must be bootlegged, spread by word of mouth, just as it has been for several generations, passing gradually from the more intelligent and fortunate to those less so.

Contraception
Distinct from
Abortion

The argument that the general publication of contraceptive knowledge is unsafe because it would encourage sex relationship among young people before marriage does not seem to be an honest one, for legislators have repeatedly refused to change the laws so as to permit physicians and others duly qualified to give such knowledge to *married* people. As for the unmarried, the majority of sophisticated and educated young people today are familiar with it. Hence those from whom the present laws withhold the knowledge are not the unmarried, but the uneducated and those timid married couples who have never got into the drift of the modern movement.

SO-CALLED NATURAL METHODS OF PREVENTING CONCEPTION.—The puritanical or ascetic belief that sexual relations

are sinful is the real basis of the archaic laws against the spread of contraceptive knowledge. Since the natural outcome of this relation is conception, the medieval notion held that conception and child-bearing were a sort of heaven-sent punishment for sinful pleasure. Therefore to take away the punishment and allow the pleasure was to encourage immorality. The fact that celibacy is encouraged by the same minds that are opposed to contraception is a further proof of the contention that the opposition to birth control is an opposition likewise to sexual love.

In accordance with this spirit, some of the opponents of contraception have sanctioned control by means of decreased frequency, interruption or incompleteness of the sexual act. The law puts its ban upon disseminating information on the mechanical or chemical interference with the union of the male and female cells. Among the various methods which require no devices of any description we can enumerate the four following, all of which have their advocates:

Lawful
Birth-
control
Information

First, refraining from sexual intercourse except when conception is desired.

Second, the performance of the sexual act in some incomplete or interrupted manner which therefore prevents conception.

Third, the limiting of sexual intercourse to times when no mature ovum or egg is supposed to be present in the female organs to be fertilized.

Fourth, the permanent sterilization of one or both partners by a surgical operation.

The first method mentioned, that of refraining from sexual intercourse if no children are wanted, has always been the method advocated by those who believe that sex is unclean and sinful, but is excusable as a means of procreation. People who hold such doctrines are often sincere and well-meaning, but have lived unfortunate and unhappy lives. Many of them are either celibates or elderly people who have been unhappy in their own married lives and sexual relations and have come to think sexual love an evil and ugly thing. Some of them are people who have become parents of large families, have had unlimited sexual relations themselves without contraceptive measures, and are too simple-minded to see why all people

cannot live as they have lived. Their precepts and practices can have but a limited appeal.

Those who wish to marry and refrain from sexual relations, except for procreation, certainly have the right to do so. But any person whose professional life has been such as to give him an intimate insight into a large number of lives will testify that this is an ideal rarely attained, and that when such a practice is attempted the marriage is likely to end in quarrels and divorce or in loneliness for one and outside sexual life for the other.

If it is difficult for healthy and well-sexed adults to live continent lives out of marriage, it is enormously more difficult for them to live that way within the marital relation. If they occupy separate bedrooms the situation is somewhat more possible but this involves difficulties. So it seems necessary, with human nature as it is, to rule out this plan of limiting births as impractical and rarely conducive to marital happiness.

The second method of preventing conception by incomplete or interrupted sexual relations is also much talked about but not so often successfully practiced. It was specifically condemned in the Bible when practiced by Onan. This Biblical instance gave rise to the term "Onanism," which has been mistakenly applied to the practice of masturbation. The general belief of physicians and sexologists is that such forms of incomplete sexual relations are injurious to the nervous mechanism of both participants. Even when the wife is so tempered that she can complete her nervous cycle and reach the orgasm in advance of the husband, the practice of withdrawal is still open to serious objection because of its effect on the husband's nervous system. It also has the disadvantage of not being a certain means of prevention for it may fail in one of three ways: the man may simply fail in the excitement of the moment to carry out his intentions; or he may have premature emission of a small quantity of the seminal fluid of which he may be unaware; or lastly, if he returns to another act within even several hours, seminal fluid may still be lodged in and emitted from the urethral passage. Since a single microscopic sperm cell is sufficient to impregnate the ovum, one can see how such a method of prevention may lead to disappointment.

Incomplete
Coition

The third natural method of preventing conception is

Possible
"Barren
Period"

based upon the fact that a woman conceives more frequently at certain times during her sexual cycle than at others. This is the safest, most natural and most advisable of those methods of rendering conception less probable that do not come under the ban of the law. It has been known for generations that women more frequently conceive in the first two weeks following the menstrual period and that the likelihood of conception then decreases, being at a minimum during the week before the beginning of the next menstruation. Many groups of statistics have been gathered that throw light on the likelihood of conception at various periods of the monthly cycle. One investigator studied sixty-five cases of marriage that occurred within the last eight days preceding menstruation without finding a single instance where conception could have been attributed to the preceding menstruation and ovulation.

If the period of time-reckoning is started from the beginning of menstruation and the period is the normal twenty-eight days, the likelihood of conception reaches its maximum about the eighth day, which would be from three to four days after the cessation of menstruation. The likelihood of conception, however, is still great until about the eighteenth day after the beginning or the fourteenth day after menstruation comes to an end. By the twentieth day after the beginning of menstruation the likelihood of conception is small and conception continues to be unlikely for about one week, or until the new menstrual period starts. But since the sperm cell may retain its vitality in the female genital tract for several days, one discharge prior to menstruation may impregnate the ovum discharged at that time.

However, the statistics of various investigators regarding this last or so-called sterile week are not wholly in agreement. Some would indicate that it is a completely sterile period and that the occasional cases of conception reported as occurring at this time are due to error. Since most of the data of this sort have been based upon war-time observation of wives who conceived when their husbands were home on brief furloughs, it is obvious that any cases of infidelity not reported would invalidate such statistics. Therefore, specialists in this subject are not altogether agreed as to whether this last week before menstruation is normally a week of complete sterility or only

STERILE PERIODS UNCERTAIN 1907

a week of probable sterility. In any case, however, the evidence is overwhelming that women are less likely to conceive at this period than at other times. It must not be forgotten, however, that if a woman enters ardently into the sexual act and has one or more powerful orgasms, such may cause rupture of a Graafian follicle almost ready to burst, thus bringing into the genital tract a ripe ovum which may be reached by a sperm cell if any such cells are present.

To what extent can the practical sterility of the week before menstruation be relied upon as a means of preventing conception in married life? Considering that all methods of prevention may at times fail, this one is not to be denied consideration because it is not absolutely sure. However, there are some objections to it. The most obvious one is that it limits sexual relations to about one week each month. A second is that the natural sexual passion, and therefore the participation in the sexual act by the woman, is greatest at the time when conception is most likely to take place, and least at the period when she is least likely to conceive. However, this distinction varies with individuals and rarely is as great as a naturalist, familiar only with animal life, would be likely to assume.

Supposed
Sterile Period
Unreliable

Woman differs from other females not only in permitting the sexual relation at any time in the ovulation cycle, but in being able to respond to it almost equally well at any time. In spite of her more continuous receptivity it is likely that her instinctive desire will be much greater when Nature indicates the act for the natural purpose of conception. The well-sexed woman, married to a man of weaker sexual inclination, would be likely to rebel at such a restricted program which might result in her breaking out of the marital bonds, legally or otherwise.

Like those methods previously mentioned, this one of preventing frequent conceptions is, therefore, not wholly satisfactory. It has been useful in the past and may still be fairly useful, especially when the woman has already borne several children and when one or both of the partners is past the earlier flare of youthful love. It undoubtedly was the method of family limitation employed in past generations before modern methods of contraception were known. But as a plan for

1908 SURGICAL STERILIZATION

starting out in married life it has little appeal and among young people is probably little practiced. Indeed, those who have enough restraint in such matters to practice such limited sexual relations, in ninety-nine cases in one hundred, would have enough intelligence and will-power to learn and practice more modern methods of contraception.

Sterilization

A fourth legal method of preventing conception is enumerated for the sake of completeness. It is that of sterilization by surgical operation. This method is advocated by eugenists to prevent procreation by defectives. It has no place in the lives of intelligent people, except in rare cases of incurable disease, habitual miscarriage or other defects that make parenthood for the patient obviously and permanently undesirable. There are such cases, and there is no law to prevent such an operation if a doctor can be persuaded that the case demands it. Many women first learn of this method through the physician or surgeon.

The operation on men is simpler than the corresponding operation on women. In the case of the man it consists merely



PHOTOGRAPH KEYSTONE VIEW

Day-Nurseries, when well conducted, solve some of the problems of the working mother of the city.

in severing or tying the seminal ducts so the seminal fluid is no longer admitted into the urethral passage. Cutting or tying the duct does not stop the functioning of the testicles and does not check the sexual propensities. The man is still capable of the sexual act, but with the duct severed or tied his orgasm occurs with no emission of semen.

The corresponding operation on woman consists in severing the Fallopian tubes, not in removing the ovaries. As with the man, it does not prevent the woman from having or enjoying sexual intercourse. It may even indirectly increase her desire and response in the sexual act because it removes fear of pregnancy, but it prevents conception as the ova do not reach the uterus, though menstruation continues.

It is possible that other methods of preventing conception which do not run foul of existing laws, because not anticipated by them, may yet be discovered. Many scientists believe, for instance, that methods will soon be discovered similar to the operations just mentioned, which will be completely and absolutely effective without any direct application at the time of intercourse, but which will permit the restoration of function when that is later desired. No such methods are known at this writing. Whether or not they will be achieved is a matter of opinion. It would seem that refinements in surgery might some day reach the stage at which the tubes severed in the operation above discussed could be only temporarily sealed and later made to function again. There is also a possibility that the present extensive research into the effects of glandular secretions may result in the discovery of the hormones that control ovulation so this process can be checked and restored at will. Certain researches in animals indicate that this is a possibility. Should any such research result in the discovery of more effective methods of birth control than are now known the present laws will not apply to them, so it will be interesting to see whether new laws will be enacted against them.

NATURE VERSUS CIVILIZATION.—This discussion of conception prevention by so-called natural methods may seem incompatible with respect for Nature and for natural life which is part of the faith of physical culturists. But before an attempt is made to adopt naturalism in sexual relations, concep-

tion and bearing of children, it is best to go back and consider what Nature's demands of the human species in this respect really are.

Present Con-
ditions vs.
Primitive

One of the activating principles of untamed nature is the struggle for existence. Primitive man was subjected to that struggle on a par with the other animals. The prime essential of the struggle was that all species of life should produce numerous offspring. The codfish is reputed to lay five million eggs. Obviously if all these eggs hatched and all these little fishes lived to maturity and each female of the brood laid five million eggs, the ocean shortly would be a solid mass of codfish.

The higher species of animals have fewer young; but when given correspondingly better care a much larger proportion reaches maturity. Among the more prolific mammals, such as the rat and the pig, one female in her normal lifetime may give birth to a hundred or so of young. Among such animals as the horse and the cow a healthy female during its life would give birth to ten or perhaps twenty. That is just about the reproductive capacity of the human female.

Obviously this rate of increase is incompatible with civilized life. Even with the most optimistic ideas regarding progress in ability to feed and sustain greater populations, man cannot continue to multiply very fast without provoking annihilating wars. Indeed, few would argue that further multiplication in China and India is desirable. Even in the lands recently occupied by the white race and still possessing great resources, like the Americas and Australia, the greatest desirable rate of multiplication requires that each woman rear not more than three children, the figure being rather under than over this.

It thus becomes necessary to find ways of checking the healthy woman's natural capacity to give birth to large numbers of children. Those who object to doing this because it is not natural must, logically, accept Nature's cruel methods of destroying a large part of the children born, before they in turn can bear children. It is simply a case in which Nature fails to meet the conditions, so mankind is compelled to choose the most desirable ways of repairing her failures.

NATURALNESS OF MOTHERHOOD.—Motherhood is not only natural, but necessary, for the full fruition and lasting enjoy-

ment of life. Therefore, in any ideal civilization, it would seem that the limited quota of child-bearing which the race can permit should be a privilege which each woman should crave and enjoy, rather than a duty forced upon her by man or the state. But civilization has not yet reached any such ideal, nor will it for many generations to come. The present need, at least in America, is that the superior women should have more than their quota of children, while the less fortunate should be helped in their need to bear fewer children, since they cannot have many without doing damage to the nation and the race.

Motherhood,
a Privilege,
Not a
Penalty

In this connection it should be pointed out further that a woman who possesses health and who lives in circumstances which encourage her to bear and properly care for many children is not justified in limiting her family to two or three children on the grounds that such a quota is her fair share. That is the number of children which each woman should bear were conditions ideal. But it should not be forgotten that many children die before maturity and that, unfortunately, there is a growing number of women who for one reason or another have no children, or only one child. These losses must be made up by the better mothers having more children. It is hoped that this additional child-bearing eventually will shift to those who are most capable of this additional motherhood.

